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Teacher perceptions of selected factors influencing

implementation of educational change

by

Gene Elroy Fokken

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NATURE OF THE STUDY

Introduction

Formal organizations have developed because of the real and perceived needs of man. The continuance and even survival of these organizations have been, in part, dependent on their ability to remain useful and appropriate to their environment. Through better research and improved technology, knowledge and its utilization have caused many environmental changes. Due to changing societal needs and new individual wants, organizational goals have been modified. A changed environment coupled with different organizational purposes requires behavioral changes whenever the individual is caused to function in this altered setting. The interpretation of these changes is influenced by each individual's attitudes, abilities, motives, and past experiences for people tend to behave according to the way they perceive themselves and their surroundings. Behavior which reflects change is a basic concept in an effective analysis of the change process.

Change has long been a fundamental issue for sociologists and educators. Their concern has centered on the introduction, implementation, and adoption of better ways to meet organizational goals. Educators particularly have increased their efforts to learn more about implementing new programs and methodology. The stages of implementing an innovation are usually thought to include the five steps of awareness, interest, evaluation, trial and adoption (77). Innovation, then, is not considered a unitary act. Attempts to increase the adoption rate of innovations have met with limited success.

Paul Mort (73) studied the process of educational change for several decades. His studies pointed out the hesitancy with which the schools adopt new methodology. Resistance to change is frequently encountered by initiators of change. Parents, teachers, and administrators are often reluctant to accept and support new educational practice. Studies conducted about such opposition are generally reported from the perspective of those who initiate the change. Because the innovator has ignored, in his appraisal of change, the viewpoint of the teacher, there continued to exist a critical gap in most attempts intended to produce change. Because adoption of change occurs in innovation at different rates with different people (88, p. 626), then each teacher can provide the researcher with valuable data concerning the rate at which innovation will be adopted.

The thesis of this study is that the personal traits of teachers and their perceptions of the educational process contribute to the successful implementation of educational change. Hopefully, the agent of change possessing this information about teacher perceptions and traits could then implement changes with considerable reduction in resistance from the teachers involved.

To study adoption and diffusion in education, a major change in allocation of pupil time and in instructional methodology was selected, viz., continuous progress learning, a type of individualized instruction for elementary schools. Continuous progress learning (CPL) is characterized by having each pupil begin at his own level of ability and advance as rapidly as his individual ability allows--instruction is self-paced. Objectives in continuous progress learning are stated in terms of performance. Pre- and post-tests of a self-administered nature identify the monitoring process

associated with continuous progress learning. A variety of activities is available to meet the individual abilities and interests of the learner. Continuous progress learning strives to reduce excessive repetition, removes restraints of learning beyond grade levels, and is intended to place the learner on a competency-based learning continuum. The focus is on individual progress.

Anderson (3), Goodlad (37), and others who promoted CPL during the 1960's point out that the initiation and implementation of continuous progress learning requires that the individual teacher change behavior. It appears likely that the adoption of a program such as CPL could be studied to understand the phases of change in a teacher's behavior which will be necessary for implementing other major innovations in schools.

Statement of the Problem

The problem of this investigation is to determine differences, if any, existing between the personal traits and the perceived needs of teachers using a well established continuous progress program and those personal traits and perceived needs of teachers using a conventional teacher oriented classroom methodology.

More specifically, the following questions are to be answered:

1. Are there distinguishing personal traits of teachers participating in continuous progress learning programs?

2. Do teachers using a continuous progress format perceive a greater need for role and program clarification than teachers using conventional methods?

3. Do teachers using a continuous progress format perceive a greater need for training experiences than teachers using conventional methods?

4. Do teachers using a continuous progress format perceive a greater need for supplies and equipment than teachers using conventional methods?

5. Do teachers using a continuous progress format perceive a greater need for school organizational rearrangement than teachers using conventional methods?

6. Do teachers using a continuous progress format perceive a greater need for staff commitment than teachers using conventional methods?

In answering these questions, the following hypotheses will be used for direction:

1. THERE IS A SIGNIFICANT DIFFERENCE IN SELECTED PERSONAL CHARACTER-ISTICS OF ELEMENTARY TEACHERS WHO USE CONTINUOUS PROGRESS LEARNING AND THOSE WHO USE CONVENTIONAL METHODS IN REGARD TO THEIR SELECTED PERSONAL CHARACTERISTICS OF:

   a. age;
   b. amount of education;
   c. the recency of last college/university credits;
   d. belief system;
   e. attitude toward change;
   f. job satisfaction;
   g. felt need for participation in decision making;
   h. interpersonal regard;
   i. knowledge of learning theory;
   j. rate of adopting a teaching methodology.

2. THERE IS A SIGNIFICANT DIFFERENCE REPORTED BY ELEMENTARY TEACHERS WHO USE CONTINUOUS PROGRESS LEARNING AND THOSE WHO USE CONVEN-

TIONAL METHODS WITH REFERENCE TO THEIR PERCEIVED NEED FOR A DEFI-

NITION OF:

a. the teacher's role;
b. the goals of the instructional program.

3. THERE IS A SIGNIFICANT DIFFERENCE SHOWN BY ELEMENTARY TEACHERS WHO

USE CONTINUOUS PROGRESS LEARNING AND THOSE USING CONVENTIONAL

METHODS IN THEIR PERCEIVED INSERVICE TRAINING PROGRAM NEEDS OF:

a. planning with teacher involvement;
b. administrative support;
c. activities based on teacher needs;
d. teacher evaluation.

4. THERE IS A SIGNIFICANT DIFFERENCE EVIDENCED BY ELEMENTARY TEACHERS

WHO USE CONTINUOUS PROGRESS LEARNING AND THOSE WHO USE CONVEN-

TIONAL METHODS IN REGARD TO THEIR PERCEIVED NEED FOR:

a. instructional supplies;
b. instructional equipment;
c. teacher participation in determining instructional supplies
   and equipment.

5. THERE IS A SIGNIFICANT DIFFERENCE REVEALED BY ELEMENTARY TEACHERS

WHO USE CONTINUOUS PROGRESS LEARNING AND THOSE WHO USE CONVEN-

TIONAL METHODS IN REGARD TO THEIR PERCEIVED NEED FOR ALTERING THE

ORGANIZATIONAL CHARACTERISTICS OF:

a. the scheduling of activities;
b. the methods of grouping pupils for instruction;
c. the administrative role;
d. the decision making structure.

6. THERE IS A SIGNIFICANT DIFFERENCE OF PERCEIVED NEED FOR STAFF COM-

MITMENT TO THE INSTRUCTIONAL PROGRAM GOALS BY ELEMENTARY TEACHERS

WHO ARE USING CONTINUOUS PROGRESS LEARNING AND THOSE WHO ARE USING

CONVENTIONAL METHODS.

Definition of Terms

The following definitions are presented to give clarity to their use and meaning:

1. <u>Teacher</u>: a certified person who gives instruction, directs, and evaluates pupil activity in a classroom environment.

2. <u>Opinion</u>: what a person thinks about something, a belief not so strong as knowledge.

3. <u>Perceptions</u>: an intuitive cognition or judgment based on the senses of seeing, hearing, and feeling.

4. <u>Continuous progress learning</u> (<u>CPL</u>): a method of organizing learning activities that has the following characteristics:

   a. students start at their own level and move forward at their individual rates to experience personal success,

   b. behaviorally stated objectives,

   c. variety of learning activities,

   d. pre-, post-, and self-tests.

5. <u>Elementary schools</u>: schools containing grade one through grade six.

6. <u>Conventional classrooms</u>: elementary classrooms not using continuous progress learning.

7. <u>Building principal</u>: chief administrator of the attendance unit included in this study.

8. <u>Open mind</u>: acceptance of a particular belief which is based on logical relationships (89, p. 14).

9. <u>Closed mind</u>: acceptance of a particular belief which is based on irrelevant internal drives (89, p. 14).

10. <u>Interpersonal</u> <u>regard</u>: the degree of importance an individual puts on relationships between two or more persons which leads to mutual satisfaction of personal needs for harmonious existence (95, p. 6).

11. <u>Teacher</u> <u>role</u>: individual teacher and institutional expectations of teacher behavior.

12. <u>Organizational</u> <u>rearrangement</u>: to effect: scheduling of school time, pupils grouped for instruction by age (41, p. 139), grading procedures, administrative role, and decision making structure (41, p. 215).

Delimitation of the Study

The scope of this study is confined to selected Iowa elementary schools who have initiated CPL during the last 20 months (as of October 1, 1975) and a matching number of control schools. Within the experimental schools, classroom teachers who are directly using the continuous progress learning were selected for study. Members from the control schools were selected from the same point in time as were schools using CPL. It was not possible to use intradistrict matching in all cases.

Furthermore, teacher personal characteristics were limited to certain selected characteristics. Only specific teacher perceptions were studied, i.e., need for additional information about the teacher's role in their respective instructional programs, need for inservice training, need for materials and equipment, need for organizational rearrangement, and the need for staff commitment in implementing CPL. These perceptions were identified by the literature as associating with a willingness to adopt innovations.

REVIEW OF LITERATURE

Introduction

A frequent criticism of the American educational system has been its failure to deliver appropriate service to its clientele. Part of this criticism has focused on the excessive time required for new ideas and practices to become institutionalized. This abnormal time lag has been a result of resistance to change from many sources. One of these has been the teachers themselves. The alteration of teacher behavior has been a central goal in the implementation of educational change. The success of initiators of change has depended on their skill in effecting behavioral change and role adjustments in the classroom teacher.

> The significant barriers to institutional change is the resistance that persons express when such change seems threatening to roles in which they have developed considerable security (20, pp. 253-254).

Changing programs require new skills and behaviors, and these new behaviors and roles must be learned by teachers (86, p. 4). Educational leaders intent upon changing the schools must assist in the transition from the old to the new responses. In order to develop a strategy to overcome resistance to change, factors which teachers perceive as hindrances must be known.

In reviewing the literature regarding factors causing resistance to change, four major areas were addressed: 1) educational change, 2) continuous progress learning, 3) leadership and change, and 4) teachers and change.

Educational Change

Previous efforts in seeking new ways of organizing schools, instruct-

ing pupils, and establishing better approaches for dealing with chronic

educational problems have met with varying degrees of acceptance. Proposed

solutions have met resistance. In a report recapping a 20-year period and

expenditures totaling approximately $80,000,000 to encourage useful changes

in education, the Ford Foundation concluded:

> When a plan to develop a critical mass of innovations that
> would overcome the inertia of school systems began to do just
> that, it also began to generate conflict among the groups
> affected (69, p. 27).

The conflicts encountered may arise from a lack of scientific fact to

support educational goals and processes. "Until the knowledge base of edu-

cation becomes more orderly, precise, and extensive, ways to achieve desir-

able educational change will remain ambiguous and confusing" (78, p. 146).

Part of this problem is the limitations of educational resarch in providing

proof of Method A's effectiveness over Method B. The innovative educator

is constantly frustrated because of difficulty of providing immediate evi-

dence of his efforts (99, p. 711). Even when he can, attack from conserva-

tive and traditional societal elements seems to distort the issue to mini-

mize change.

The lack of an economic incentive is another reason for resistance to

change. There seems to be no possible profit motive to implement innova-

tions (78, pp. 170-171). Rigid salary schedules and ineffective evaluation

procedures provide little monetary reward for the educator who develops

superior educational practice. Associated with small financial reward is

the high risk of failure an innovator takes when he introduces new ideas.

Use of new approaches and methods that do not produce results based on tra-

ditional norms can place the innovator in a precarious position. Peer

pressures from traditionalists, inadequate proof of the new technique's

value, and deviation from societal expectations are factors which can cause

abandonment of a proposal before it has a fair trial.

> Education on the other hand, has only the "campus" or "uni-
> versity" schools and those classes in the nation's schools that
> are willing to cooperate in experimentation. In either case, the
> first responsibility is to the student, not research. Thus,
> results of innovation trials are often ambiguous, incomplete, and
> confusing (20, pp. 201-202).

The bureaucratic nature of public education itself is an inhibitor to

change (82, p. 239). The characteristics of a bureaucracy, efficiency, a

well-defined hierarchy of authority, rules and regulations, and imperson-

ality, describe many educational programs (78, p. 57). Hage and Aiken (44,

pp. 30-61) maintain these factors are inhibitors to the change process. A

bureaucracy can squelch and distort new ideas by its complex communication

network, voluminous rules and regulations, and its emphasis on procedures

and efficiency.

Hage and Aiken (44, pp. 71-82) suggest the requisites for change in a

bureaucracy are decentralization, a certain amount of autonomy, a concern

for worker attitudes, and funds for experimental research. Despite the

problems which initiators of change must face, public and private organiza-

tions continue efforts to improve the structure and results of the educa-

tional process. The federal government has recognized the need for intro-

ducing new and fresh ideas into educational programs. The Elementary and

Secondary Education Act of 1965, Title III, provides funds for implementing

innovative programs and establishing exemplary programs. The Ford Founda-

tion has spent millions of dollars over the last two decades to encourage change in education.

A number of solutions have been proposed since World War II, e.g., team teaching, flexible scheduling, learning packages, computer assisted instruction to name a few. At the elementary school level in the United States, continuous progress learning seems to incorporate the most viable combination of innovations.

Continuous Progress Learning

During the 50's and 60's, methods of instruction shifted from a focus of teaching groups of pupils to teaching individual pupils. Recognition of individual differences resulted from in-depth research in the growth and development of learners (25, p. 45). Some concepts about individual differences which are commonly held today are: "Many obvious differences among learners can be seen in five minutes in any classroom. Other less obvious differences can be revealed only by careful study" (25, p. 45).

> Learners differ in their ability to perform tasks. Thus a child may be good in arithmetic, poor in spelling, and fair in reading according to an arbitrary standard of quality. To complicate matters, the same child displays differing abilities in performing specific tasks within each of these school subjects (25, p. 45).

> If individual differences are really taken into account, the school cannot hope to maintain a single or minimum standard for a given group of children, comfortable though this standard might be for teachers (25, p. 46).

The curriculum worker and teacher who accepts the notion of individual differences of the learners must look beyond group teaching for instructional methodology. Continuous progress learning (CPL) was designed to meet the individual developmental differences of children. The term--nongradedness--

has been used interchangeably with such names as: continuous progress

plan, continuous progress learning, or continuous growth plan (68, p. 8;

74, p. 25; 98, p. 104). It is based on the assumption that given proper

time, direction, opportunity, and a feeling of self-worth, all children can

learn. CPL requires that emphasis be placed on the individual. Anderson

(2), a recognized proponent of nongradedness (hence CPL), stated the philo-

sophical precepts associated with nongradedness:

1. Suitable provision is being made in all aspects of the cur-
   riculum, for each unique child.

2. The successive learning experience of each boy and girl will
   be, to the greatest possible extent, pertinent and appropri-
   ate to his needs at that moment.

3. Each child is constantly under just the right amount of pres-
   sure--not too much, as in the graded school for slow learners,
   nor too little, as in the graded school for talented learners.

4. Success, with appropriate rewards, is assured for all kinds
   of learners so long as they attend to their tasks with rea-
   sonable diligence and effort. Such success spurs the child
   to a conviction of his own worth, and to further achievement.

5. Absent are grade levels (first, sixth grade, etc.) and the
   related machinery of promotion and failure.

6. There is a reporting system consistent with the philosophy
   that says each child is a unique and precious individual.

7. There is more sophisticated curriculum planning, evaluation
   and record-keeping on the part of the teachers than one finds
   in schools still loyal to graded practices (p. 6).

Applied to organization and instruction, a child in a CPL program will:

(1) gain a feeling of success, (2) be taught at a level he is achieving,

(3) make continuous progress without needlessly repeating or omitting any

part of the essential program, (4) be evaluated according to his or her

individual capabilities and progress, and (5) have an opportunity for mas-

tery and for broadening experiences. The joint work of Watson et al. (103)

divided CPL into: an idea, a method, and an organization. They emphasized that CPL be based on progression of learning, that children be supported and rewarded for progress in learning, that general objectives be stated, there exists continuous evaluation, allow for flexibility in grouping, and that continuous progress be the goal for the individual learner. Bond (9 3544-A) constructed a model for a continuous progress school from ideas presented in the literature on ungraded, nongraded, and continuous progress schools. The six general characteristics of the continuous progress model school were: (1) emphasis on individual difference, (2) a curriculum based on continuums of skills, (3) selective subject matters, (4) evaluation of individual progress, (5) flexible groupings, and (6) continuous progression of learning skills. These characteristics were verified by questionnaires sent to 430 teachers and principals in schools purportedly using continuous progress learning. A positive correlation of .80 was obtained on these continuous progress characteristics and teacher/principal responses.

Among well-known CPL programs are: Individually Guided Education (IGE), Individually Prescribed Instruction (IPI), and Program for Learning in Accordance with Needs (PLAN). IGE resulted from joint activities of the Institute for Development of Educational Activities and the Wisconsin Research and Development Center while IPI originated at the Learning Research and Development Center at the University of Pittsburgh. The Westinghouse Learning Corporation developed the widely used CPL program, PLAN.

Individually guided education

Instructional processes represent the heart of IGE. These processes provide appropriate learning programs for each child built on a continuous cycle:

(a) assessment--finding out where the student is and how he got there;

(b) specifying objectives--deciding what he needs to learn next;

(c) diversified learning opportunities--selecting the best way for him to attain those objectives;

(d) reassessment--making sure he has met the objectives (101, p. 31).

Individually prescribed instruction

IPI, a plan of nongraded school organization to individualize instruction, has been used in numerous schools. The program uses packets of content material developed in sequence for individual progression, independent study on individual projects, programmed materials, and tapes for individualizing the skill subjects (74, p. 26). In IPI, the student works mainly as an individual. Characteristics of IPI are: pupils proceed with various materials prepared by the school's teachers and IPI's specialists; when he has completed a unit of work, he is tested, the test is corrected immediately, and, if he receives a grade of 85 percent or better, he moves on. If the grade is lower than 85 percent, the teacher offers a series of alternative activities including special individual tutoring to correct the weaknesses. The teachers are kept busy observing the child's progress, evaluating tests, writing prescriptions, and instructing pupils who need help individually or in small groups (74, pp. 26-27). Through the use of IPI materials, the teacher selects appropriate instructional objectives and

assesses each student's status in relation to the objectives. The teacher

then prescribes a program to be used by the student in mastering the objec-

tives. The teacher conducts a systematic evaluation of the student's prog-

ress (54, p. 13).

Program for learning in accordance with needs

PLAN is a program designed to individualize instruction for students

in the four major academic areas. The program has individualized materials

in language arts, mathematics, social studies, and science. Programs of

study developed by the teacher in conjunction with information stored in a

computer concerning a child's previous learning experiences consist of sets

of instructional objectives to be achieved by each student through Teaching

Learning Units (54, p. 9). Daily computer information is provided the stu-

dent and teacher showing student progress. This data provides information

to make decisions concerning selection of student learning activities.

PLAN defines individualized learning operationally as a self-paced instruc-

tional system providing learning options based on pupil interests and pro-

vides a system for delivering such an instructional system (101, p. 17).

The concepts of individual progression, self-pacing, continuous evalu-

ation, varied student activities, and flexibility of grouping are integral

parts of IGE, IPI, and PLAN. The CPL concept is well represented by these

programs.

Leadership and Change

The literature generally supports leadership as a critical factor in

the improvement of society. For example, McCloskey asserts: "The more

complex society has become, the greater the need for human fulfillment and

consequently for competent leadership" (65, p. 251). Culver and Hoban

explain that: "Seeing a situation in a much broader perspective than the

average group member, leaders are able to make interpretations that help to

encourage others and to involve them more deeply in group activity" (22,

p. 19). Similarly, leadership seems particularly important during educa-

tional change.

> The impact of change within the organizational context should
> depend on how it is interpreted by those on whom it impacts. In
> turn, their interpretations should reflect how well they were
> prepared psychologically for the change, how well they think they
> can cope with the change, and how much help they can expect from
> their superordinates in coping with change. This kind of prepa-
> ration for change would fall within the definition of leadership
> (56, p. 294).

> No matter what the governing structure of the projects (Ford
> Foundation), by far the greatest responsibility (for their imple-
> mentation, design, and maintenance) lay with the project director
> (69, p. 33).

Teacher perceptions of the necessary leadership style and behavior

which enhance adoption of new educational practice can provide the innova-

tor with information concerning the viability of strategies he not employ.

Effler (28, 7111-A) found a significant difference exists between adminis-

trator perception of needed change and what the primary teachers perceive.

Therefore, it seems likely that teachers' perceptions of needs during edu-

cational change must be known.

Gross and Herriott (42, pp. 152-153) concluded from their study that

several behavioral patterns may affect the extent to which a principal

serves as leader to his staff. Among these were: (1) his willingness to

allow teachers to participate in central school decision making and (2) the

extent of managerial support he offers them. Darte (23, p. 44) also states

that the teaching staff needs leadership to provide constant encouragement along with a true democratic spirit by the administrator.

Griffiths (39, pp. 278-284) studied the administrative performance of 232 elementary principals. One of the components of this study was concerned with organizational change. Analysis of the correlations obtained suggests that elementary principals supporting change should be sensitive to the needs and wishes of subordinates. Charters (18, p. 32), Gehrman (33, 2639-A), Darte (23, p. 44), and Reynolds (85, 2659-A) all concluded that shared decision making is a crucial factor in reducing teacher resistance to change.

Lippitt (64, p. 311) collected data from the instructional staff of nine elementary and secondary schools. He focused on the styles, personal qualities, and methods of teachers and principals and their interrelations within the school when initiating change. A high positive correlation between new practices developed by teachers and the staff's perception of the principal's support for innovative teaching was found.

The question of whether a principal qualifies as a leader during innovation has often been raised. Fuhr (32, 4414-A) concluded that principals initiate innovation less than 50 percent of the time. Gill's (35, 2753-A) examination of innovation as related to complexity of the public school system found that specialists and administrators, excluding the building principal, were most frequent initiators of change. Reese (84, 2497-A) and Griffiths (39, p. 283) also found that the impetus for change usually comes from somewhere other than the building principal.

Even though principals may not initiate change, by nature of their position in the hierarchial structure of the school system, certain behav-

iors used by them can inhibit or facilitate the proposed change. The behavioral characteristics of leaders and/or principals which appear to facilitate change and reduce resistance are: shared decision making (4, 2053-A), flexibility (4, 2053-A), a systematic plan for sharing new ideas (47, 2053-A), strategy based on the personal growth of people (74, p. 161), provides encouragement to the teaching staff (22, p. 44), and gives managerial support (42, p. 18). The prudent leader would be wise to include these factors into his design for reducing teacher resistance to the proposed change.

Teachers and Change

Classroom teachers, by nature of their position in instructional program, can exert great influence on the actual implementation of any new methodology. If teachers accept the change, they can certainly enhance system-wide adoption. Should teachers resist the innovation, success at implementing the proposed change is tentative. Gross et al. (41) argue that "the teacher who must make the behavior change specified by the innovation remains a crucial factor in the successful introduction of new educational practice" (41, p. 35). Indeed Bridges and Reynolds contend that: "the teacher can kill the innovation by communicating negative comments about it and/or by sabotaging the innovation during its implementation" (13).

Resistance to change

Watson (104), Lewin (62), Stephens (100), and Sergiovanni and Starratt (96) have assumed that teachers initially are resistant to change. Gross et al. (41, pp. 8-9) and Coffey and Golden (20, p. 228), however, propose that resistance may begin after an attempt is made to implement an innova-

tion because of unremoved obstacles and poor leadership which in turn causes teacher rejection of the innovation. A further indication of the dilemma faced by teachers during educational change and the accompanying behavioral change required is stated by Coffey and Golden (20, pp. 228-229).

> While it is true that most persons have aspirations that would indicate dissatisfaction with their present behavior, some of the values and beliefs seem mutually antagonistic or antithetical. Thus, a person may have considerable resistance toward this goal. Becoming a better teacher may mean, for instance, that he must realize that he is not perfect, as he now thinks he is, or achieving his goal may involve changing his relationship to his principal who seems to like him as he is now....We have all seen the internal struggle of children who try to resolve the conflict between living up to the expectations both of their peers and their parents.

Teachers are faced with accepting the proposed change as an individual and also interacting in the changed social system of which they are a member. Yet: "all of the forces which contribute to stability in personality or in social systems can be perceived as resisting change" (104, p. 2). Quite naturally: "people develop tastes and preferences under the influence of particular experiences and these orientations are significant for the acceptance or rejection of new ideas" (5, p. 378). Coffey and Golden explain how interaction can enhance the likelihood of change by noting that: "the individual is motivated to change when there is disequilibrium between the tension system of the individual and the surrounding social field" (20, p. 251).

Lippitt (64, pp. 310-311) views the forces of resistance as dependent on the characteristics of the practice itself; the physical and temporal arrangement of the school; the social structure and authority system of the school; and the attitudes of teachers as being significant in helping or hindering change. The individual teacher's resistance to change has been

esblished as a part of total opposition to new and different methodology. Since some teachers seem to accept change with few concerns and yet others reject even the slightest deviation from old procedures; it would appear that there are personal characteristics and traits of individual teachers that influence them to identify or align themselves with resistance to change.

Personal data

The personal characteristics and traits of individuals involved in educational change have been a source of frequent study by researchers. The purpose has been to determine if a relationship exists between the personal traits of participating individuals and adoption of innovations (Robinson, 87; Eastman, 27; Zimmerman, 110; Jones, 58). Results of these studies have been inconclusive.

Beckerman (8) focused on the relationships of teacher characteristics and attitudes toward innovation. Personal attributes studied were: socio-economic status, sex, age, geographical origins, religion, race, marital status, and number of children. The career patterns of teachers were examined which included: graduate courses, length of time teaching, district tenure, income, subjects taught, and grade level taught. No significant difference was determined in personal attributes or career patterns of the 500 teachers studied.

Some research, however, tends to support that certain teacher characteristics are related to their acceptance of change. Hawkins' study (49, 4410-A) of personal factors which contribute to successful educational innovation concluded that teachers most likely to accept change were in

their 30's, had one or more years of graduate work, and had five to ten years of teaching experience. Jones (58) reviewed the research conducted to relate the personal traits and characteristics of teachers to differing degrees of innovativeness. He reports the different traits researched with the number of supportive and nonsupportive studies. Relevant parts of his findings are included.

Personal Traits of More Innovative Versus Less Innovative Teachers from Studies Using the Teacher as a Respondent (58)

Trait	Supportive	Nonsupportive
Age	9	7
More Education	7	4
Recent Schooling	2	0
Open Belief Systems	6	3
Favorable Attitude toward Change	4	0
High Job Satisfaction	3	1
Perceive Themselves Involved in Decision Making	3	0

Teacher traits and characteristics, based on the survey by Jones (58), which appear to be related to teacher innovativeness are: age, amount of education, the recency of the education, open belief systems, a favorable attitude toward change, high job satisfaction, and perceived involvement in decision making. These were included in the present study. A further search of the literature revealed a teacher's degree of interpersonal regard, knowledge of learning theory, and individual adoption rates may yield additional information about their willingness to accept change.

Interpersonal regard   The individual teacher is usually not acting independently during the implementation of CPL, therefore, the effects of interpersonal relationships must be recognized as a possible factor in resistance to change.

> The role of the person is interactional in the sense that it
> always involves relations to some other object other than the
> self or the person. Usually, if not always, this interaction is
> with another person, hence the role can be said to be interper-
> sonal (20, p. 233).

Required changes in teacher behavior during innovation can cause different

interpersonal relationships to occur. A case in point would be the

increased peer exposure inherent in moving from self-contained class organ-

ization to team teaching. A second point is that innovative teachers may

be more idiographic in their orientation (84, 2497-A). Such teachers

demand more independence and serendipity.

The personal needs of individual teachers may have an effect on the

overall success of implementing educational change. Consequently, the

degree of interpersonal regard held by teachers was included to determine

differences, if any, existing between CPL and conventional teachers.

Selected portions of the FIRO B (Fundamental Interpersonal Regard Orienta-

tion) developed by Schutz (95) was used in the survey instrument. Witt

(108) reported success in using this instrument in developing an interper-

sonal profile of Iowa Area College instructors.

Belief system   Jones' (58) review of personal traits does not show

consistent significance of the relationship of open and closed mindedness

to the degree of teacher innovativeness. Bridges and Reynolds (13) studied

307 elementary teachers to determine the relationship of open belief sys-

tems and receptivity to change. They found that a moderate relationship

existed. Walsh (102, 4410-A) studied 86 randomly selected elementary

teachers using an innovative social studies program in Minnesota and admin-

istered the Rokeach Dogmatism Scale (89), Form E, to determine the rela-

tionship between open-closed mindedness to the degree of implementation of

the program. While 84 percent of the teachers scored in the open minded

end of the scale, he concluded that statistical significance was too slight

to bear consideration. Lippitt (64, p. 311), Doll (25, p. 171), and Duncan

(26, p. 22) also suggest the existence of a positive relationship between

open mindedness and teacher innovativeness.

The importance of open mindedness may be summarized by the following

statement by Doll (25, pp. 171-172):

> Perhaps every specialist in curriculum improvement agrees that
> the improvement process is aided mutually by an attitude of open
> mindedness about new and different as well as about the tried and
> tested. So little in education is known assuredly that any
> school person is acting presumptuously when he clings to ideas
> merely because they are supported by tradition.

Learning theory   The amount of basic knowledge of learning theory

teachers possess may affect their adoption rate of continuous progress

learning (84, 2497-A). Teacher responses in the study conducted by Reese

(84, 2497-A) indicated that lack of such knowledge was one of the largest

barriers to change. The Chambliss (17, 4368-A) study of adopting innova-

tion and teacher attitudes showed that innovative teachers were signifi-

cantly more knowledgeable and understood learning and motivation better

after implementing an innovation.

Adoption rate   The adoption of an innovation by individuals is not

a unitary act. Extensive research by sociologists at Iowa State University

established that the stages of implementing an innovation usually include

five steps (77): (1) awareness--potential users of the innovation become

aware of its existence; (2) interest--potential users develop an interest

in the innovation and seek information about it; (3) evaluation--the poten-

tial users perform a kind of mental trial of the innovation and form pro

and con opinions about its efficacy in accomplishing system goals, its
feasibility, and its cost; (4) trial—the target system engages in a (usu-
ally) small scale trial of the innovation, in order to assess its conse-
quences; and (5) adoption—if the trial is favorable the innovation tends
to be adopted and the strategy is complete (29, p. 303). The rate of move-
ment through these stages varies among individuals.

Different people adopt innovations at different rates (88, p. 626).
Peterfreund (82) cites other factors relating to the rate of adoption.
Variables relating to the culture, the client system, and the change agent
are: amount of behavioral change required, recipient needs, the reward
structure, local cultural pattern, two-way flow of communication, involve-
ment of all program participants, and flexible strategies. Hughes and
Spence (52) and Lippitt (64, p. 308) questioned the use of the agricultural
change model (i.e., the five steps of adoption) in studies of educational
adoption because of dissimilarities between agriculture and education. In
education one deals with a system rather than single consumers of ideas,
with an organization rather than individuals. Organizational change is
somewhat more complex than individual change. Hughes and Spence (52) state
that institutions do change less rapidly than individuals. Many rural edu-
cators have discovered to their dismay that the individual farmer who is
most willing to accept a new fertilizer which promises a greater corn crop
is seemingly less willing to accept change in school practice.

Brennan (11, 5528-A) studied 42 elementary teachers to determine their
acceptance or rejection of an innovation. He found that rejectors
responded unfavorably to Rogers' (88) characteristics of relative advantage,
compatability, and divisibility.

Its (agriculture, medicine, industry) utilization is primarily a process of objective evaluation and distribution for use. But in an applied social science field such as education, the new invention is usually a pattern of human behavior, e.g., a new way of behaving toward a group of young learners. This cannot be passed along as a "thing." The adoption of social practice or invention must be compatible with the values, attitudes, and behavioral skills of the potential adopter.

The importance of individual behavior change and accompanying adjustments in the social system are of major significance to the adopting teacher.

Perceived needs

The selected needs, as perceived by teachers (related to educational change) included in this study are: (1) role clarification; (2) program clarification; (3) inservice training; (4) supplies and equipment; and (5) organizational rearrangement.

Role clarification   Role theory has been used to explain the behavior of individuals working in organizations. The Getzel's equation (78, p. 54) of $B = f(R \times P)$, where B = observed behavior, R = institutional role, and P = personality of the role incumbent, and f, the function, is an interplay between the two dimensions, R and P; may be used as a model to consider teacher behavior during change. A new method of teaching often requires different teacher behavior (41, p. 211). Previous role expectations, perceptions, and prescriptions may not be appropriate in the changed environment. Role conflicts between role expectation and role perceptions may result. A vague and contradictory definition of the new role prescription may cause role ambiguity.

Merton (70, p. 369) defines role as that complement of role relationships which persons have by virtue of occupying particular social status. The role of the public school teachers, Merton explains, is based on vary-

ing role relationships they have with students, parents, and administrators. Teachers, then, assume their role from societal and institutional expectations, plus their individual personality needs and perceptions of teacher behavior. Changes in the classroom, school, or community environment can cause a disequilibrium between the teacher's present role and personality and between the new role and his personality. In order for a state of equilibrium to be restored, adjustment between the various roles and the individual's personality must be made. Teachers, also, need to conceptualize the expectations of others to the new role (20, p. 234). Teachers need assistance in adapting to the new role (41, p. 211; 106, 131-A). Initiators of change who fail to deal with potential role conflict and ambiguity caused by changing organizational and personal relationships can expect less than satisfactory performance by the teachers (78, p. 72).

Program clarification   Closely associated with a new role is the concept of changed goals and operational procedures which identify new and different programs. In sampling from a population of 1,000,000 students and 1,200 schools, Peterfreund (82) interviewed 400 educators in each district; among his conclusions were that prior to initiating change the innovative school should have a clear set of objectives and a philosophy with a central theme. Reynolds (85, 2659-A) concluded that innovations fail or that teachers resist because of lack of knowledge with reference to the entire instructional process including the innovative program itself. Similarly, Bond's (9, 3554-A) study of a model continuous progress program concludes with the statement "that teachers should have a prominent role in developing continuous progress programs." The sharing of decision making with teachers during planning, initiation, implementation, and adoption

stages of an innovation is an important concept for the innovator to build into his overall strategy. The initiation and implementation of a new program, such as CPL, is accompanied by a change of purpose, learning activities, and evaluation. The target population is ultimately the pupil's, however, in order for adoption to occur; the goals of the new program should be thoroughly understood by the teachers (41, p. 211; 85, 2569-A; 82).

Inservice training   The rapidity of societal change and the knowledge expansion occurring in many different areas of endeavor should be of primary concern to the change agent:

> ...that man may have to be retrained as many as four or five times during his lifetime; such retraining would apply to professionals as well as other occupations. It appears as if we are now entering an era when man's knowledge and approach can become obsolete before, or at least shortly after, he has begun the career for which he was trained (48, p. 12).

With the change of program goals and different teacher behaviors in the classroom environment requires some type of inservice teacher education program (78, p. 162). The purpose of such a program is to enable teachers to re-evaluate such areas as grading, the design and purpose of the new program, current teacher beliefs and attitudes, and the present decision making structures (24, p. 1). Data from Jensen's (57) study of teachers from 11 elementary schools adopting the "Schools without Failure" concept suggests: "inservice training is a viable means for initiating, implementing, and maintaining broad-based change in the public school system" (p. 12). Several major problems are associated with current inservice educational programs: (1) inadequate evaluation techniques (48, p. 16) and (2) administrator domination of program content and goals (24; 48, p. 9).

The relevant components for an effective inservice program during educational change seem to include:

(1) adequate resources (24; 30, p. 297; 98, p. 222);

(2) administrative support (12, p. 503; 4, 2932-A);

(3) teacher involvement (49, p. 28; 98, p. 221);

(4) appropriate program design and clear goals (24; 49, p. 30; 98, p. 219);

(5) shared decision making (24; 61; 22, p. 104);

(6) focus on teacher needs (24; 49, p. 30; 98, p. 222); and

(7) inservice program evaluation (24; 49, p. 42; 98, p. 222).

The perceived needs and requirements for successful inservice training program to be evaluated in the present investigation were: (1) administrative support which included items 1 and 2; (2) teacher involvement which included items 3, 4, and 5 above; (3) based on teacher needs, item 6; and (4) program evaluation, item 7. The inclusion of these points was deemed appropriate in a study of inservice training as related to CPL, recognizing that each innovative program has its own unique needs and requirements for successful implementation (64, p. 310).

Supplies and equipment   Recent studies have tended to stress the importance of the social structure in formal organizations, rather than financial resources, as a factor related to the amount and rate of change (15, p. 62; 39, pp. 278-281; 67, p. 43). This concept focuses on changing interpersonal relationships, the personal traits of individuals, role theory, the authority system, and the innovation itself as major variable affecting implementation. However, Reynolds (85, 2659-A) concluded that among significant factors impeding innovation is inadequate funds for the

purchase of teaching supplies and equipment to implement the new program.
Snyder and Peterson (98, p. 142) hypothesize that administrators too often
have permitted the use of the term "continuous progress learning" without
making the necessary financial commitment to provide the supporting mate-
rials to permit curriculum change to occur. Provision for "selective
subject matter" (9, 3544-A) and "provide materials which allows each to
progress at his own rate" (103, p. 34) suggests the need for adequate
instructional materials. Even though district wealth cannot insure change
(49, 4410-A), Gross et al. (41, p. 212) concluded that administrators
should make necessary materials and equipment available during implementa-
tion. In addition to having adequate teaching materials available, the
teachers should be allowed to participate in making decisions on the types
of materials ultimately purchased (23, p. 43).

Role and program clarification, inservice training, and supplies and
equipment are significant factors influencing implementation of an innova-
tion; the organizational arrangement necessary for successful introduction
of the new program is an element which must be also assessed.

Organizational arrangement   How a school is organized for instruc-
tion is of major significance to the teaching staff. "The organization of
the school becomes a major decision which affects all of the staff (98,
p. 26). "The organizational structure and psychological climate of the
school are the stage on which the dynamics of its learning groups are
played out" (94, p. 121). When a new program is considered, careful analy-
sis of the organizational structure, i.e., scheduling, grouping, grading,
administrator role, and decision making procedures should precede implemen-
tation. The philosophy and requirements of the proposed program should not

be inconsistent with the school's organizational arrangement. The intro-
duction of innovation into schools without accompanying needed alteration
of the organizational structure is a critical administrative responsibility
(41, p. 215; 35; 50, p. 78). "Rearrangements of the structural elements of
the institution depend almost exclusively upon administrative initiative"
(12, p. 503). The administrator, then, must accept the responsibility and
initiative in adapting the organizational arrangement to be compatible with
the new program.

Scheduling   While rigid scheduling may serve as an efficient
method for dealing with groups of pupils, these structured schedules
inhibit the progress of pupils pursuing learning as their individual abili-
ties allow (41, p. 138). CPL is concerned with individuals as opposed to
conventional programs which deal with groups of pupils. The introduction
of CPL would seem to require changes in scheduling patterns of the conven-
tional school. The administrator must recognize the potential resistance
teachers may exhibit when altering schedules. An I/D/E/A report of a sur-
vey of 307 administrators and 330 teachers about their reactions to differ-
ent changes, resistance was greatest in the mechanics of an organization,
e.g., hours, schedules, and recess time. Scheduling is an important ele-
ment on which teachers seem to be highly resistant to change, yet a factor
which is most crucial for the successful implementation of CPL.

Pupil grouping   A frequent hindrance to successful adoption of
recent educational innovations has been the failure to change methods of
grouping pupils for instruction (41, p. 140; 74, p. 23; 98, p. 142). IGE,
IPI, and PLAN are programs which require flexibility in grouping pupils as
opposed to traditional grouping by age. The EPIE evaluation (101, p. 38)

of these programs stresses the need for a degree of nongradedness for suc-
cessful implementation. With the progress of the individual as a central
idea of CPL, a change from conventional grouping methods seems imperative.

Grading   The implementation of an innovation such as CPL may
also require a change in reporting pupil progress (41, p. 141). With a
change in the emphasis from grading groups based on classroom norms to
grading individuals should cause a re-evaluation to conventional grading
methods. Grading in a CPL system, Anderson (2, p. 6) insists: "calls for
the adoption of a reporting system consistent with the philosophy that says
that each child is a unique and precious individual. Teachers must abolish
the ridiculous and cynical system of A-B-C-D-F report cards."

Administrator's role   A fourth element associated with organi-
zational arrangement is the effects educational change has on the role of
the administrator. Accompanying change is the alteration of roles and
functions of organizational incumbents. Unilateral decision making by an
administrator or initiator of change seems inappropriate when implementing
a new program. Suggested administrative activities for reducing resistance
and enhancing adoption of new programs are: decentralized decision making
(41, p. 215; 98, p. 248; 64, p. 318), open communication patterns (41,
p. 215; 78, p. 163; 64, p. 320), and effective feedback procedures among
the change participants (1, p. 4; 41, p. 215; 78, p. 155). Increased com-
munication and joint decision making seem to be relevant factors on which
the administrator must direct his efforts to reduce teacher resistance to
change.

Decision making   Hummell and Cox (53) surveyed students and
teachers in an innovative Pennsylvania school to determine their attitudes

about the decision making and organizational structure of the school. Teams of change agents were then introduced to modify opinions and practices about decision making responsibilities. They concluded that a broader base for decision making was necessary with increased participation by teachers and students. Hackett and McKilligan (43) in a study of multi-unit schools in Wisconsin determined that teachers' attitudes toward school were more favorable when they were allowed increased participation in the decision making process. Goodwin Watson (104, pp. 22-23), commenting on resistance to change, advances several principles which stress the importance of participation in the change process:

1. Resistance will be less if participants have joined in diagnostic efforts leading them to agree on what the basic problem is and to feel its importance.

2. Resistance will be less if the project is adopted by consensual group decision.

3. Resistance will be reduced if participants experience acceptance, support, trust, and confidence in their relations with one another.

During initiation and implementation of educational change, teachers must be involved in making decisions which affect their instructional programs. Teacher participation in diagnosing problems and arriving at a group solution can generate the type of total staff support needed for implementing a new program.

Staff commitment   Commitment has been used synonymously with the terms "engagement," "undertaking," and "promise." Halpin and Croft's (45) study of the organizational climate of schools resulted in the Organizational Climate Description Questionnaire used to determine school climate from the perspective of the teacher and principal. Among teacher response

categories is -- disengagement. The Eastman study (27, p. 25) defines dis-

engagement thusly:

> Disengagement refers to the teachers' tending to be "not with
> it." This dimension describes a group which is "going through
> the motions," a group that is "not in gear" with respect to the
> task at hand....

The antonym for disengagement is engagement or commitment. Is the teaching

staff committed to the task at hand? Implementation of educational change

requires that the participants are willing to invest the extra time and

effort required. Staff commitment to the proposed change is vital to

ensuring minimal success (82). Carmichael's (16) synthesis of the Peter-

freund Study and the Ford Foundation Report states that among the five con-

ditions of readiness for innovation is a desire to change and a receptive

teaching staff. The lack of, or the weakening of, any one of these condi-

tions will lessen or weaken the chances of successful innovation. While

the Carmichael study refers to teacher receptivity, receptivity is neces-

sary before commitment will be obtained. Flanigan's (30) review of the

implementation of Euclid English reflects that "ultimately the individual

teacher must commit himself." Rubin (90, p. 29) found that "given a legit-

imate objective, adequate opportunity, and good reason to achieve it,

teachers seem to respond with unsuspected eagerness." Staff commitment

requires that they pledge their support not only verbally but by their

overt actions for successful implementation. No doubt that the individu-

al's personal commitment to change is a crucial factor. The key is "per-

sonal commitment." What does one really believe (64, p. 381)?

Summary

During educational change the importance of the classroom teacher
appears to be a major factor with which the initiator of change must
include in his strategy. This investigation focused on the personal traits
and perceived needs of teachers when CPL is introduced into elementary
schools. Several personal traits of teachers were determined as associat-
ing positively with the implementation of educational change were teachers
who: (1) were younger; (2) had more education; (3) had recently attended
college; (4) had an open belief system; (5) a favorable attitude toward
change; (6) a high degree of job satisfaction; (7) felt they participated
in decision making; (8) had a high degree of interpersonal regard; (9) had
a better knowledge of learning theory; and (10) had more rapid adoption
rates.

The perceived needs of teachers found to be of major significance dur-
ing education change include needs for: (1) clarification of the teacher's
role; (2) clarification of program goals; (3) an appropriate inservice
training program; (4) proper and adequate teaching supplies and equipment;
(5) rearrangement of organizational characteristics, i.e., scheduling,
pupil grouping, pupil grading, the administrator's role, and the decision
making process; and (6) a high degree of staff commitment to the instruc-
tional program. These personal traits and perceived needs of teachers were
included in the present study to allow comparison with the traits and per-
ceptions of teachers involved with educational change and those teachers
using conventional methods.

METHODS AND PROCEDURES

Introduction

The basic thesis of this study was that increased knowledge of individual teacher traits and their perceived needs for successful implementation of a given innovation will identify ways for the educational leader to reduce teacher resistance to change. The problem was to determine the differences, if any, among selected traits and perceptions of teachers using continuous progress learning and those using conventional methods.

Specific areas investigated were personal traits of teachers, their perceptions of teacher role and the instructional program, needed inservice training, supplies and equipment, organizational arrangement, and staff commitment.

Selection of Teachers

The sample for this investigation was taken from Iowa public elementary schools using CPL and those using conventional methods. Elementary schools selected were matched in terms of district enrollment, geographical location, instructional cost per pupil, and building teacher/pupil ratios. Course screening for eligibility (via CPL methodology) was accomplished by examining the records of the Iowa Department of Public Instruction for IGE and IPI schools and those of the Westinghouse Corporation, Iowa City, Iowa, for PLAN schools. Control and study schools were selected to participate only if they had at least 20 months of continuous experience with their current program.

Generally, the CPL schools were located in central and eastern Iowa. Eleven school districts which included 28 elementary schools were found to

be presently using the formal CPL programs of IGE, IPI, and PLAN for at
least 20 school months. The appropriate school district administrator was
then contacted to explain the nature of the study. Three districts were
excluded from further consideration as a result of this initial inquiry.
One district was not included because of a K-5-3-4 organizational design,
and two districts declined because of current district research associated
with the CPL concept. Eight school districts with a total of 21 elementary
schools remained to be used as study schools. These school districts were
classified according to school population size with the arbitrary catego-
ries of over 10,000 pupils and 0-9,999 being used. The number of classroom
teachers in each school size was obtained from the participating district's
records. (See the open-faced table below for this analysis.)

Size	School district population	Number of CPL teachers available in selected districts	Number of districts
1	10,000-over	162	2
2	0-9,999	165	6
		Total 327	8

Next, these study elementary schools were matched with elementary
schools using conventional methods. The first criteria used was school
district population, then instructional costs per pupil, and, finally,
teacher/pupil ratios. Intradistrict matching was used for size 1 schools
and interdistrict matching was employed for the small school size. Schools
in size 2 were matched with nearby school districts as shown in Table 1,
based on statistics available from Iowa Department of Public Instruction
records.

Table 1. School district data used for matching study and control teachers

	Study districts		Control districts	
	District population	Participating elementary schools	District population	Participating elementary schools
Size 1	41,135	9	41,135	9
	23,023	1	23,023	1
Total		10		10
Size 2	3,181	3	1,661	4
	3,006	1	3,314	1
	3,001	3	2,098	3
	2,874	1	3,314	2
	2,444	1	2,098	1
	2,231	2	3,314	2
Total		11		13
Study Total		21		23

See open-faced table for the results of the control teacher selection.

Size	School district population	Number of control teachers	Number of districts
1	10,000-over	167	2
2	0-9,999	165	3
	Total	332	5

The sample teacher population to be used in this study, then, was 327 study teachers and 332 teachers for control purposes.

Development of Survey Instrument

A survey instrument was devised to determine and quantify teacher personal characteristics and to obtain their perceptions regarding selected factors affecting implementation of educational change. Items for the

instrument were developed from a comprehensive study of the literature. Next, a field test was performed and final review by Professor John Menne (Director of the Evaluation and Testing Service at Iowa State University) was used to refine the instrument.

Items were generated in six areas to test the hypotheses of the study: (1) personal characteristics of the teacher, (2) teacher role and instructional program goals, (3) inservice training needs, (4) needed supplies and equipment, (5) needed organizational arrangements, and (6) staff commitment. The completed instrument is presented in the Appendix.

Part one was used to collect information about the respondents' personal traits and opinions. The selected items were: age, amount of education, recency of education, grade level taught, teaching experience in present building, belief system, attitude toward change, job satisfaction, involvement in decision making, interpersonal regard, knowledge of learning theory, and individual adoption rates. These criteria were selected to determine personal differences, if any, between teachers using CPL and those using conventional methods.

The second part of the survey instrument collected information about teacher perceptions of various aspects of the instructional program. Items used in this section were based on major concepts found in the literature. A Likert-type, five-point scale was used for the respondents to express their perceptions. This continuum (as shown below) was used for part two of the survey instrument.

```
1.  Almost never   or  almost none     or   0% -  20% of the time
2.  Seldom         or  a few           or  20% -  40% of the time
3.  Occasionally   or  about half       or  40% -  60% of the time
4.  Frequently     or  many            or  60% -  80% of the time
5.  Constantly     or  almost always   or  80% - 100% of the time
```

Questions 1, 2, 25, and 26 were used to determine teacher perceptions of their role in the instructional program while items 3, 4, 27, and 28 were to determine the clarity with which a teacher understood instructional program goals. Questions 5 through 9 and 29 through 33 queried teachers about their perceived needs for inservice training. Perceptions sought were selected from the factors of involvement, administrative support, teacher needs, and teacher evaluation. By using this approach, responses could be analyzed in regard to specific positive or negative effects of current inservice training efforts and to provide data for future studies of this nature.

Teacher perceptions of needed supplies and equipment determined in questions 10 through 13 and 34 through 37. These items were designed to get teacher opinions in regard to: supplies, equipment, and the decision making process in purchasing supplies and equipment.

The respondents' perceptions of needed organizational arrangement to meet instructional goals were measured in questions 14, 15, 16, 17, 18, 19, 38, 39, 40, and 41. This section was subdivided into five areas intended to represent the organizational arrangement factor, vis-à-vis, scheduling, pupil grouping methods, pupil grading procedures, decision making processes, and the administrator's role. These divisions were made to allow for a comparison with existing studies.

Finally, questions 20, 21, 22, 23, and 24 obtained responses concerning the teacher's perception of staff commitment to the instructional program. Part two, then, includes teacher perception of needs which were found to rank high and associate positively with innovation, namely, clarity of the teacher's role, understanding program goals, a comprehensive

inservice training program, special supplies and equipment, organizational rearrangement, and staff commitment.

Collection of the Data

During the last two weeks of September and the first weeks of October, 1975, all selected study and control teachers were supplied with the instrument. The questionnaires were personally delivered to each building principal agreeing to participate in the study. A discussion with the principal centered on: (1) the written directions accompanying each instrument, (2) the confidentiality of replies, (3) the administration and follow-up procedures, and (4) a brief discussion of the type of instructional program being used. All classroom teachers received the instrument through their mail boxes. On the fourth day after delivery, the building secretary was asked to follow up on unreturned instruments. Approximately ten days after delivery, the researcher returned to pick up completed questionnaires and provide the building secretary with coded envelopes for mailing of any instrument that might yet be returned before October 17, 1975. The secretary was asked to initiate a second follow-up to obtain late questionnaires.

Analysis of Data

The data collected by the survey instruments were coded and condensed to language appropriate for Statistical Analysis System (SAS) (5) and Statistical Package for Social Science (SPSS) (82). These programs accommodated the statistical comparisons necessary for the study.

In order to determine statistical significance of age difference, amount of education, and the recency of education, the data were submitted to the chi square test using the following formula (97, p. 21):

$$\chi^2 = (f_1 - F_1)^2/F_1 + (f_2 - F_2)^2/F_2$$

where

f_1 and f_2 = the sample counts of individual who do and do not possess the characteristic being investigated

F_1 and F_2 = the corresponding hypothetical or expected frequencies

This formula may be condensed to the more general one:

$$\chi^2 = \Sigma(f-F)^2/F$$

where

Σ = denotes summation

The remaining factors of this study were tested by the use of a 2 x 3 x 2 factorial design

where

(1) school size consisted of two levels; (a) size 1, over 10,000 district pupil population and (b) size 2, under 10,000 district pupil population

(2) grade level consisted of three groups; (a) first and second grades or 6-, 7-, and 8-year-old pupils, (b) third and fourth grades or 8-, 9-, and 10-year-old pupils, and (c) fifth and sixth grades or 10-, 11-, and 12-year-old pupils

and

(3) treatment consisted of (a) CPL teachers and (b) conventional teachers.

Kerlinger and Pedhazur (59, pp. 155-156) summarized the advantages of the factorial design thusly:

The first, and perhaps the most important, advantage is that it is possible to determine whether the independent variables interact in their effect on the dependent variable.... Second, factorial designs afford the researcher greater control, and, consequently, more sensitive statistical tests when compared to the statistical tests used in analyses with single variables.... Third, factorial designs are efficient. One can test the separate and combined effects of several variables using the same number of subjects one would have to use for separate experiments....Fourth, in factorial experiments the effect of a treatment is studied across different conditions of other treatments. Consequently, generalizations from factorial experiments are broader than generalizations from single variable treatments.

Due to the number of independent and dependent variables used in this investigation (59, p. 352), multivariate regression analysis was first used on the data. Independent variables were collectively analyzed according to the following model, where:

$$Y_{ijkl} = \overline{Y} + a_i + b_j + c_k + ab_{ij} + ac_{ik} + bc_{jk} + abc_{ijk} + E_{ijkl}$$

where

$\overline{Y}$ = the grand mean for the dependent variables

a_i = the overall effect of size i

b_j = the overall effect of grade level j

c_k = the overall effect of treatment k

ab_{ij} = the overall interaction effect of size and grade level ij

ac_{jk} = the overall interaction effect of size and treatment ik

bc_{jk} = the overall interaction effect of grade level and treatment jk

abc_{ijk} = the overall interaction effect of size, grade level, and treatment ijk

E_{ijkl} = the error associated with the collective scores of individual under treatment combinations $a_i b_j c_k$

Wilks' Λ (lambda) was then applied to multivariate analysis of variance data to determine statistical significance of the grouped variables. The formula used to compute this statistic was:

$$\Lambda = \frac{|W|}{|T|}$$

where

W = the matrix within sums of squares and cross products

T = the matrix of the total sums of squares and cross products (59, p. 356-358)

with the conversion to an F test being accomplished by

$$F = \frac{1 - \Lambda^{1/s}}{1/s} \cdot \frac{ms - v}{t(k-1)}$$

where

Λ = Wilks' lambda

N = total number of cases

t = total number of dependent variables

K = number of experimental treatments

$$s = \frac{t^2(K-1)^2 - 4}{t^2 - (K-1)^2 - 5}$$

$$v = \frac{t(K-1)-2}{2}$$

$$m = \frac{2N-t-K-2}{2}$$

A multivariate analysis of variance table was then constructed for each factor which gave the Wilks' Λ value, degrees of freedom, and the converted F value. F scores were calculated beginning with the smallest Λ for each table and until further F conversions would obviously not yield a significant F value.

The data were then submitted to regression using a three-way analysis of variance process on each item. The purpose of this analysis was to determine which individual statement contributed to statistical significance discovered in the multivariate analysis and, if no significance was evident, to see which items may offer potential for further study. The following model was used in the regression analysis:

$$Y_{ijkl} = \bar{Y} + a_i + b_j + c_k + ab_{ij} + ac_{ik} + bc_{jk} + abc_{ijk} + E_{ijkl}$$

where

$\bar{Y}$ = the grand mean of the dependent variable

a_i = the effect of size i

b_j = the effect of grade level j

c_k = the effect of treatment k

ab_{ij} = the interaction of size and grade level ij

ac_{ik} = the interaction of size and treatment ik

bc_{jk} = the interaction of grade level and treatment jk

abc_{ijk} = the interaction of size, grade level, and treatment ijk

E_{ijkl} = the error associated with individual l under treatment combinations a_i, b_j, and c_k

Statistical significance was set at the .05 level with .01 level also being reported. Significant findings for all main effects and interactions involving treatment were reported. All treatment means were also given for each survey item.

DISPLAY OF DATA

Study Sample

The survey instrument was administered to 659 Iowa public elementary teachers in 11 school districts. A much higher percent of return was obtained from teachers in the smaller school size classification (Table 2). The teachers of the smallest district classification (Size 2) completed the questionnaire at 85.5 percent rate, while the large school percent was only 59.9 percent for a composite return percentage of 72.7.

Table 2. Number and percent of replies received from study and control teachers

	Study teachers			Control teachers		
	Total	Return	Percent	Total	Return	Percent
Size 1	162	106	65.4	167	91	54.5
Size 2	165	149	90.3	165	133	80.6
Total	327	255	78.0	332	224	67.5
Composite totals	659	479	72.7			

After the return deadline of October 17, 1975, instruments from teachers with less than 20 months teaching experience were eliminated from further consideration in the study. Table 3 shows the results of this screening. Of the 479 questionnaires available, 66.4 percent, or 318 instruments, were used in this analysis. A higher percent of CPL teacher instruments were eliminated because of the 20-month requirement.

Table 3. Number and percent of instruments included in this study

	Study teachers			Control teachers		
	Total	Included	Percent	Total	Included	Percent
Size 1	106	58	54.7	91	68	74.7
Size 2	149	93	62.4	133	99	74.4
Total	255	151	59.2	224	167	74.6
Study totals	479	318	66.4			

Once the final sample of study and control teachers was established, each of these groups was subdivided into the proper school size and grade level categories. Table 4 presents the data arranged into the three classifications: school size. grade level, and treatment.

Personal Characteristics of Teachers

Part one of the survey instrument collected data about selected personal characteristics of the respondents. The teacher characteristics sought included: age, the amount of education, the recency of that education, their belief system, their attitude toward change, degree of job satisfaction, involvement in decision making, degree of interpersonal regard, knowledge of learning theory, and the rate of adopting instructional methodology.

Age

A review of the frequency distribution of teacher ages revealed 278 responses to the question. One control instrument was excluded from the

Table 4. Number of instruments included by school size, grade level, and treatment

Grade level	Study teachers		Control teachers		Total
	Number	Percent	Number	Percent	
		Size 1			
1	21	36.2	30	44.1	51
2	17	29.3	20	29.4	37
3	20	34.5	18	26.5	38
Total	58	100.0	68	100.0	126
		Size 2			
1	34	36.6	34	34.3	68
2	29	31.2	30	30.3	59
3	30	32.2	35	35.4	65
Total	93	100.0	99	100.0	192
Composite totals	151		167		318
Study totals	318				

data finally used because the age stated (21) was not consistent with other information on the questionnaire. The remaining 277 responses were used to determine if a significant age difference existed between CPL and conventional teachers. The data from the frequency distribution of ages were collapsed into six-year intervals from age 24 to 65 for CPL and control teacher classifications. Results of this grouping were reported in Table 5. The mean age for CPL teachers was 39.6 while control teachers averaged 41.7 years. Analysis produced a chi square value of 9.438 which was insignificant at the .05 level with six degrees of freedom.

Table 5. Distribution of ages for study and control teachers used for chi square analysis

| Age interval | Study teachers | | Control teachers | | Total | Percent |
	Number	Percent	Number	Percent		
24-29	35	12.6	34	12.3	69	24.9
30-35	26	9.4	30	10.8	56	20.2
36-41	10	3.6	16	5.8	26	9.4
42-47	17	6.1	20	7.3	37	13.4
48-53	.24	8.7	12	4.3	36	13.0
54-59	9	3.3	18	6.4	27	9.7
60-65	10	3.6	16	5.8	26	9.4
Totals	131	47.3	146	52.7	277	100.0
$\bar{X}$	39.6		41.7			

Amount of education

Three hundred one teachers responded to the statement about the years of college they had completed. The information from the instruments was collapsed into the design as shown in Table 6 to allow for analysis by the chi square test. The control teachers with three years of college were placed in the four years of college or less. All study teachers had obtained at least four years of college. Four study and four control teachers reported a seventh year of college. These teachers were placed in the six years or more category. Calculation of mean years of college for each group revealed that CPL teachers had attained 4.57 years and control teachers 4.46 years.

The results of the chi square test on the data in Table 6 gave a value of 2.938 which was insignificant at the .05 level with two degrees of freedom.

Table 6. Distribution of years of college completed for study and control
teachers used for chi square analysis

Years of college	Study teachers		Control teachers		Total	
	Number	Percent	Number	Percent	Number	Percent
4 yrs. or less	86	28.6	97	32.2	183	60.8
5 yrs.	41	13.6	47	15.6	88	29.2
6 yrs. or more	19	6.3	11	3.7	30	10.0
Total	145	48.5	155	51.5	301	100.0

Recency of education

A final concept submitted to the chi square test was the year the
respondents completed their last college work. Again 301 teachers
responded to this item, with a range in years reported being between 1959
and 1975. A study of the year distribution revealed a need to classify the
data into categories more suitable to the chi square test. Two-year inter-
vals were chosen with the classification 1969 and before being used to sum-
marize data for the years 1959 through 1969. The classification of
responses used for the chi square test was presented in Table 7. A chi
square value of 10.034 was calculated with three degrees of freedom. The
test revealed a significant difference (P > .02) between study and control
teachers in regard to the recency of last college work undertaken, i.e.,
CPL teacher had more recent training.

The teacher personal characteristics of belief system, attitude toward
change, job satisfaction, involvement in decision making, degree of inter-
personal regard, knowledge of learning theory, and adoption rates were sub-

jected to a multivariate analysis. The results of this analysis were pre-

sented in Table 8.

Table 7. Distribution of last year a college course was completed used for chi square analysis

Year completed	Study teachers		Control teachers		Total	
	Number	Percent	Number	Percent	Number	Percent
1969 or before	18	6.0	29	9.6	47	15.6
1970 or 1971	27	9.0	21	7.0	48	16.0
1972 or 1973	23	7.6	41	13.7	64	21.3
1974 or 1975	79	26.2	63	20.9	142	47.1
Total	147	48.8	154	51.2	301	100.0

Belief system

The type of belief system held by the respondents was tested in items

6, 7, 8, and 9. These statements were selected from Rokeach's Dogmatism

Scale, Form E (14). Items used were taken from a subscale which dealt

with an individual's attitude toward change. Multivariate analysis failed

to yield any significant main effects or interactions as shown in Table 8.

An item analysis of the belief system statements in Table 9 revealed a sec-

ond order interaction of size, grade level, and treatment. Since this

interaction hardly approached statistical significance on the multivariate

analysis, further study of the belief system characteristic was abandoned.

Table 8. Composite of multivariate analysis of sample teachers' personal characteristics

Factor	Size	Grade level	Treatment	Size x grade level	Size x treatment	Grade level x treatment	Size x grade level x treatment
Belief system Λ .9889 d.f. 8/312		.9762	.9950	.9800	.9939	.9838	.9676
Converted F	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	1.2763
Attitude toward change Λ .9754 d.f. 8/312		.9739	.9751	.9892	.9431	.9855	.9604 n.s.
Converted F	n.s.	n.s.	n.s.	n.s.	2.3227^{***}	n.s.	
Job satisfaction Λ .8588 d.f. 40/296		.8356	.8921	.8542	.9036	.9287	.8840
Converted F	n.s.	1.4055^{**}	n.s.	n.s.	n.s.	n.s.	n.s.
Decision making Λ .9753 d.f. 8/312		.9684	.9627	.9625	.9957	.9766	.9686
Converted F	1.7330^{**}	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Interpersonal regard Λ .9970 d.f. 8/312		.9765	.9862	.9692	.9619	.9367	.9656
Converted F	n.s.	n.s.	n.s.	n.s.	n.s.	2.5795^{*}	n.s.
Learning Theory Λ d.f. N/A Converted F			No output given -- error matrix singular				
Adoption rates Λ .9751 d.f. 10/311		.9626	.9679	.9586	.9605	.9709	.9853
Converted F	n.s.	n.s.	n.s.	1.2797	n.s.	n.s.	n.s.

*Significant at .10 level.

**Significant at .05 level.

***Significant at .01 level.

Table 9. Item analysis of teacher responses to belief system statements[a]

		Treatment $\bar{X}$	
Item	Question	Study	Control
6	It is only natural for a person to be rather fearful of the future.	3.32	3.28
7	Most of the ideas which get printed nowadays aren't worth the paper they are printed on.	2.39	2.34
8	In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.	2.91	3.07
9	It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.	4.24	4.41

[a]Six-point Likert scale: 1 = I disagree very much; 2 = I disagree on the whole; 3 = I disagree a little; 4 = I agree a little; 5 = I agree on the whole; 6 = I agree very much.

Attitude toward change

Statements 10 through 13 were to determine a teacher's attitude toward change. These items were selected from Lippitt's (64) suggested list. Data from the analysis as reported in Table 8 reveal a significant interaction found in the multivariate analysis. CPL teachers in large districts
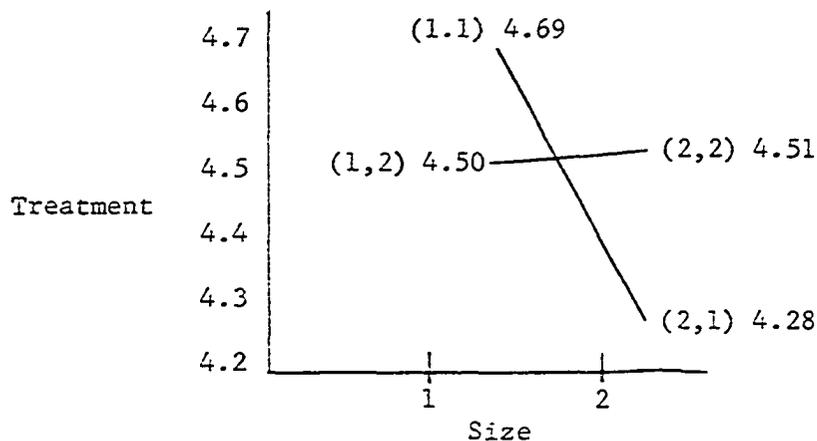
Figure 1. Interaction of size and treatment for attitude toward change

have a significantly more favorable attitude toward change than study

teachers in large districts; however, study teachers in the small districts

had a more favorable attitude toward change than CPL teachers in the same

size districts. CPL teachers in larger schools scored significantly higher

than CPL teachers in the smaller schools. However, the study teachers from

the smaller districts responded more favorably than study teachers in the

larger schools. Quite obviously the interaction was caused by the variance

of responses by CPL teachers in large and small school districts since con-

trol teachers, regardless of size, had a mean difference of .0074. An item

analysis of statements in Table 10 revealed a highly significant interac-

tion of size and treatment in statements 11 and 12. These items apparently

account for significant interaction.

Job satisfaction

Items used were selected from the Minnesota Job Satisfaction Question-

naire, Short Form (14). Statements 14 through 33 were to collect data

about the respondent's degree of job satisfaction. Terminology was changed

where necessary to be applicable to the school environment. A perusal of

Table 8 reveals that the multivariate analysis did not yield a significant

treatment main effect or interaction. Grade level, however, did approach

statistical significance (.10 level). Teachers in grades three, four,

five, and six responded more favorably than the first and second grade

teachers. Inspection of Tables 11 and 12 reveals that control teachers had

a higher degree of job satisfaction than study teachers in those items

where main effect treatment occurred.

Table 10. Item analysis of teacher responses to attitude toward change statements[a]

Item	Question	Treatment $\bar{X}$	
		Study	Control
10	Are you willing to try something new--something that will require extra initial effort on your part?	5.49	5.26
11	Do coffee hour or informal conversations include new ideas and developments in curriculum and instruction?	4.50	4.28
12	Do you take the initiative in contacting other schools and/or school systems that are trying an idea or program that is of interest to you?	3.56	3.53
13	Do you bring new ideas and developments to the attention of colleagues as well as appropriate administrative personnel?	4.75	4.59

Type and Level of Significance

Item	Grade level	Treatment	Size x treatment	Size x grade level x treatment
11	.0384			
12		.0168	.0054	
13			.0009	
14				.0213

[a]Seven-point Likert scale: 1 = No, never; 2 = No, almost never; 3 = Usually not, infrequently; 4 = Sometimes, yes and no; 5 = Usually yes, frequently; 6 = Yes, almost always; 7 = Yes, always.

Table 11. Item analysis of teacher responses to job satisfaction question-naire[a]

Item	Question	Treatment $\bar{X}$ Study	Control
14	Being able to keep busy all the time.	3.90[***]	4.18
15	The chance to work alone on the job.	3.49[**]	4.04
16	The chance to do different things from time to time	4.44[**]	4.49
17	The chance to be "somebody" in the community	3.71[**]	3.87
18	The way my supervisor handles the faculty.	3.64[**]	3.91
19	The competence of my supervisor in making decisions.	3.69[**]	3.97
20	Being able to do things that don't go against my conscience.	3.95[**]	4.23
21	The way my job provides for steady employment.	4.36	4.40
22	The chance to do things for other people.	4.44	4.44
23	The chance to tell people what to do.	3.18	3.35
25	The way policies are put into practice	3.23[**]	3.29
26	My pay and the amount of work I do.	3.48	3.75
27	The chances for advancement on this job.	3.44	3.59
28	The freedom to use my own judgment.	4.07	4.22
29	The chance to try my own methods of doing the job.	4.24[**]	4.41
30	The working conditions	3.94	4.20
31	The way my co-workers get along with each other.	3.94	3.81
32	The praise I get for doing a good job.	3.67	3.77
33	The feeling of accomplishment I get from the job.	4.19	4.37

[a]
Five-point Likert scale: (1) = very dissatisfied; 2 = Dissatisfied; 3 = Undecided; 4 = Satisfied; 5 = Very satisfied.

[**]Significant at .05 level.

[***]Significant at .01 level.

Table 12. Type and level of significance to job satisfaction statements

Item	Size	Grade level	Treatment	Size x grade level	Size x treatment
14			.0401		
15	.0310		.0003		
18	.0049		.0320		
19	.0035		.0158		
20			.0266		
21	.0258				
22	.0386				
24					.0175
26	.0154		.0465	.0389	
27				.0305	.0367
28		.0485			
29		.0119			
30			.0134		
33				.0182	

Decision making

Questions 34 through 37 collected information about the teachers' perception of their participation in the school's decision making process. Statements used evolved from concepts from an unpublished instrument in Power to Change (22). As noted in Table 8, the multivariate analysis did not result in statistical significance for main effects or interaction. The item analysis, presented in Table 13, shows several main effects. School district size seems to be a more important factor than grade level or treatment. Substantial difference (.10 level) was evident in school district size with large school districts reporting a mean of 4.16 compared to 3.86 for smaller schools. Evidently teachers in large schools perceive themselves more involved in making decisions related to the instructional program.

Table 13. Item analysis of teacher responses to decision making statements[a]

Item	Question	Treatment $\bar{X}$ Study	Treatment $\bar{X}$ Control
34	Instructional decisions are made only after a thorough evaluation by the certified personnel involved.	3.95	3.98
35	Both principal and teachers participate in making decisions which affect the instructional program.	4.31	4.23
36	Instructional decisions are generally reached by majority agreement of the teachers.	4.12	3.77
37	Before a major instructional decision is made, opinions from persons outside the building are obtained.	4.31	3.67

Type and Level of Significance

Item	Size	Treatment	Size x grade level
35	.0487		.0498
36	.0156	.0256	
37	.0065		

[a]Six-point Likert scale: 1 = Never; 2 = Seldom; 3 = Sometimes; 4 = Frequently; 5 = Usually; 6 = Always.

Interpersonal regard

Selected test items from Schutz's Fundamental Interpersonal Regard Orientation (FIRO-B) (14) were used in this section. The statements were taken from the sub-sets of this test--inclusion wanted (items 39, 40, and 41) and inclusion expressed (item 38). Table 8 reports the results of multivariate analysis of these four statements. A highly significant

interaction between grade level and treatment was found. An inspection of Figure 2 shows that, at grade levels 1 and 2, control teachers scored significantly higher than CPL teachers. However, fifth and sixth grade CPL teachers scored somewhat higher than traditional teachers at these grades.
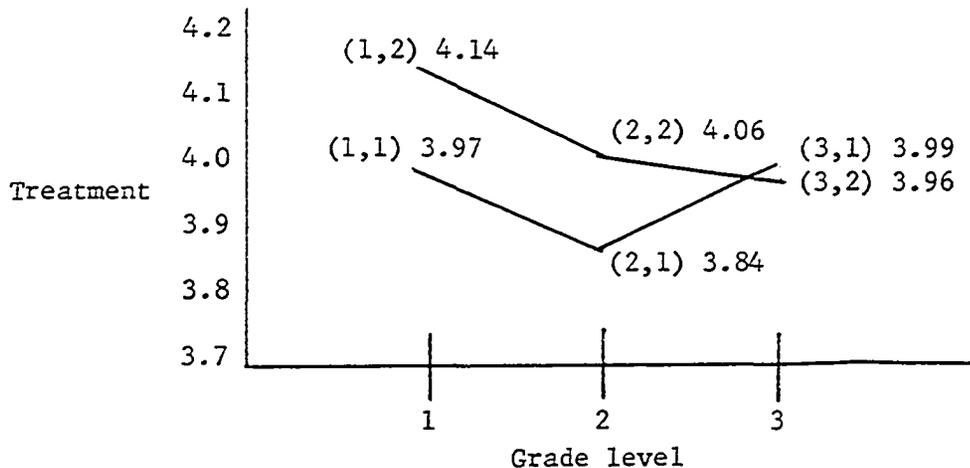
Figure 2. Interaction of grade level and treatment for interpersonal regard

Examination of Table 14 shows that questions 40 and 41 account for this interaction of grade level and treatment. While the univariate data shows several items with an interaction of size and treatment, this result was not continued in the multivariate analysis.

Knowledge of learning theory

The statements included in this section were taken from Hilgard's Theories of Learning (51). They were to collect data about each respondent's knowledge of learning theory. The multivariate analysis failed to give output since the error matrix was singular. Analysis of individual items resulted in a size main effect and an interaction between size and treatment on item 44. This data is reported in Table 15.

Table 14. Item analysis of teacher responses to interpersonal regard statements[a]

Item	Question	Treatment $\overline{X}$ Study	Control
38	I try to be friendly to people.	5.63	5.79
39	I let other people decide what to do.	3.86	3.85
40	I try to have close relationships with people.	4.02	4.19
41	I let other people control my actions	2.26	2.40

Type and Level of Significance

Item	Size x treatment	Grade level x treatment
39	.0036	
40		.0300
41	.0199	.0183

[a]Six-point Likert scale: 1 = Nobody; 2 = One or two people; 3 = A few people; 4 = Some people; 5 = Many people; 6 = Most people.

Adoption rate

The final statements of part one were to secure information about study and control teachers' particular stages of adopting, rejection, or continued evaluation of an instructional methodology. Item 46 was to serve as a test to verify the instructional methodology used by each building and was consistent with the purposes of this research. Table 16 shows that both study and control teachers responded very close to the agree choice of the five alternatives given. Responses to items 47 and 50 revealed little difference between study and control teachers. Both groups felt their

Table 15. Item analysis of teacher responses to learning theory statements[a]

Item	Question	Treatment $\bar{X}$ Study	Control
42	Pupil tolerance for failure is best taught through providing a backlog of success that compensates for experienced failure.	3.80	3.43
43	Learning motivated by success is preferable to learning motivated by failure.	4.74	4.74
44	Information about good performance and knowledge of mistakes aids learning.	4.52	4.60
45	Individuals need practice in setting realistic goals for themselves.	4.52	4.54

Type and Level of Significance

Item	Size	Size and treatment
44	.0125	.0288

[a]Five-point Likert scale: 1 = Strongly disagree; 2 = Disagree; 3 = Undecided; 4 = Agree; 5 = Strongly agree.

methods were meeting the educational goals and that they could defend these methods to parents. Evidently the study teachers did not feel as confident with their methods as control teachers as evidenced by their response to statement 48.

The final item, statement 50, in this collection was suggested by Eichholz (29). The first choice was rejection of instructional methodology being used, the second choice was one of conditional acceptance or continued evaluation, and the final alternative was one of full adoption. The

Table 16. Item analysis of teacher responses to adoption rate statements[a]

Item	Question	Treatment $\bar{X}$	
		Study	Control
46	The instructional methods I use are similar to those used by other teachers in the building.	3.85	3.77
47	The instructional methods I am now using seem to be meeting the educational goals of the district.	4.11	4.15
48	I feel comfortable with my current methods of teaching.	3.99	4.20
49	I feel I am able to easily defend my instructional methods to parents.	4.27	4.34
50	In regard to the instructional methods you are now using, which of the following statements best describes your feeling about these methods. Use check (✔).	2.04	2.00
____(1)	I am dissatisfied with my present teaching methods.		
____(2)	I have no complaints with my current instructional methods.		
____(3)	I am completely sold on my present teaching procedures and am encouraging my colleagues to use them.		

Type and Level of Significance

Item	Grade level	Treatment	Size x Treatment
46			.0033
48		.0422	
50	.0126		

[a]Five-point Likert scale: 1 = Strongly disagree; 2 = Disagree; 3 = Undecided; 4 = Agree; 5 = Strongly agree.

mean scores given by respondents on item 50 revealed little difference in adoption rates. It seems that teachers, regardless of instructional methodology, are at least mildly satisfied with their methods.

Teacher Perception of Instructional Program Needs

Part two of the questionnaire was devoted to gathering data about teacher perceptions toward various aspects of the instructional program. Major areas evaluated were: (1) the teacher's role and instructional program goals; (2) the inservice training program; (3) supplies and equipment; (4) organizational characteristics; and (5) staff commitment. All responses for statements in this section were keyed as follows:

1. Almost never   or   almost none   or   0% - 20% of the time
2. Seldom   or   a few   or   20% - 40% of the time
3. Occasionally   or   about half   or   40% - 60% of the time
4. Frequently   or   many   or   60% - 80% of the time
5. Constantly   or   almost always   or   80% - 100% of the time

Teacher role

Statements 1, 2, 25, and 26 were taken from concepts of Coffey and Golden (20) designed to collect information about teacher perceptions of their role in the instructional program. Teachers were questioned about their behavior as related to pupils, other teachers, administrators, and their function in meeting educational program goals. Multivariate analysis revealed a significant main effect on grade level as reported in Table 17. It appears that teachers of grades three and four have a significantly clearer understanding of the teacher's role than the other two grade levels. The data from the univariate analysis in Table 17 do not show statistical significance which is reflected in multivariate data beyond what has been mentioned. The findings of this study do not show

Table 17. Analysis of responses to teacher role statements

Item	Question	Treatment $\bar{X}$ Study	Treatment $\bar{X}$ Control
1	I know how administrators expect me to teach.	4.03	3.93
2	I am aware of how I should respond to pupils in an instructional situation.	4.44	4.42
25	I have a clear understanding of my function in the instructional program.	4.52	4.50
26	I have a clear understanding of my relationship to other teachers.	4.52	4.41

	Size	Grade level	Treatment	Size x grade level	Size x treatment	Grade level x treatment	Size x grade level x treatment
Multivariate analysis							
Teacher role Λ	.9686	.9423	.9827	.9739	.9637	.9882	.9682
d.f. 8/312							
Converted F	n.s.	2.3653*	n.s.	n.s.	1.3626	n.s.	n.s.
Univariate data							
Item 1		.0265					
$\tilde{X}$		1) 4.47					.0410
		2) 4.59					
		3) 4.33					
Item 26							
$\tilde{X}$	.0484						
	1) 3.84						
	2) 4.04						

*Significant at .05 level, means for grade level: 1 - 4.30, 2 - 4.44, 3 - 4.30.

need by the teacher for role clarification to presently exist beyond what conventional teachers may need. The position may be taken that, after 20 months experience with CPL, teachers may have assumed the new teaching role without current role conflict.

Program goals

In order to determine teacher perceptions concerning the clarity of their respective instructional program goals, statements 3, 4, 27, and 28 were developed from the concepts of Gross et al. (41) and Lippitt (64). Table 18 reports data from the multivariate analysis of the four items in this collection. School district size was a significant factor. Teachers in larger districts seem to have a clearer perception of their program goals than do teachers in smaller school districts. The results of item analysis show that statement 4 accounts for this highly significant finding because of its probable F value of .007. Instructional methods did not seem to be a significant factor.

Inservice training needs

Data are collected through 14 questions about the components of inservice programs as perceived by teachers. These perceptions were: degree of teacher involvement, amount of administrative support, the inclusion of teacher expressed needs, and the program evaluation by teachers. Table 19 presents the composite results of the multivariate analysis of the four factors tested.

Teacher involvement   The degree that teachers felt a part of developing the total inservice was the perception to be sought in statements 5 and 29. The concepts used were taken from the DeVore (24) study of inser-

Table 18. Analysis of teacher responses to program goal statements

Item	Question	Treatment $\bar{X}$	
		Study	Control
3	Administrators have outlined a specific plan for the further development of the instructional program.	3.47	3.50
4	I try to evaluate the degree to which school goals have been realized.	3.79	3.74
27	I feel free to consult other teachers in obtaining information to solve instructional problems.	4.61	4.50
28	I engage in discussions aimed at defining school goals.	3.99	3.77

	Size	Grade level	Treatment	Size x grade level	Size x treatment	Grade level x treatment	Size x grade level x treatment
Multivariate analysis Λ d.f. 8/312	.9454	.9797	.9786	.9784	.9985	.9803	.9876
Converted F	2.2378**	n.s.	n.s.	.8322	n.s.	n.s.	n.s.
$\bar{X}$	1) 4.00 2) 3.85						
Univariate analysis							
Item 4	.0007						
$\bar{X}$	1) 3.98 2) 3.62						
Item 28			.0140				

**Significant at .05 level.

Table 19. Composite of multivariate analysis of inservice training components

Factor	Size	Grade level	Treatment	Size x grade level	Size x treatment	Grade level x treatment	Size x grade level x treatment
Teacher involvement $\triangle$	.8988	.9945	.9732	.9915	.9963	.9882	.9884
d.f. 4/314							
Converted F	8.6770**	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Administrative support $\triangle$	.9462	.9596	.9553	.9614	.9778	.9514	.9530
d.f. 16/308							
Converted F	1.0695	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Teacher needs $\triangle$	.9801	.9876	.9815	.9715	.9992	.9825	.9968
d.f. 4/314							
Converted F	n.s.	n.s.	n.s.	2.2453*	n.s.	n.s.	n.s.
Teacher evaluation $\triangle$	.9402	.9921	.9921	.9907	.9935	.9935	.9941
d.f. 4/314							
Converted F	4.9333***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

*Significant at .10 level.

**Significant at .05 level.

***Significant at .01 level.

vice training to effect educational change. The results of the multivari-
ate analysis show a highly significant difference between school district
sizes. Apparently teachers in large schools perceive themselves more
involved in determining the inservice program (.0001 level) than teachers
in small schools as shown in Table 20. Further inspection reveals a sig-
nificant effect from treatment. The means for each statement were signifi-
cantly different at the $P > .03$ and $P > .01$ levels.

Table 20. Item analysis of teacher involvement in determining inservice
programs

Item	Question	Treatment $\bar{X}$	
		Study	Control
5	Teacher expressed needs form the basis for inservice training topics.	3.62	3.32
29	Teachers initiate topics for inservice meetings rather than administrators.	3.29	2.96

Type and Level of Significance

Item	Size	Treatment
5	.0001	.0228
$\bar{X}$	1) 3.85	
	2) 3.21	
29	.0001	.0057
$\bar{X}$	1) 3.49	
	2) 2.87	

Administrative support   Inadequate administrative support is
thought to be major factor in developing an inservice training program to
meet the needs caused by educational change (4, 11). Survey instrument
items 7, 9, 31a, 31b, 31c, 31d, 31e, and 33 were used to get respondents'
perceptions on the adequacy of certain resources. The multivariate analy-
sis showed that school district size was a significant factor in state-
ment 9 and a grade level and treatment interaction in item 31a. The results
of this study do not show a significant difference between study and con-
trol teachers in regard to administrative support. However, inspection of
treatment means in Table 21 for each item shows that control teachers gen-
erally scored higher though not significantly. CPL teachers did score
higher on statement 9 which may indicate that building administrators may
attempt to provide adequate inservice programs, but the necessary resources
of funds, space, materials, equipment, and time may not be available or
cannot be allocated at the building level.

Teacher needs   Statements 6 and 30 were used to determine if
teacher expressed needs were appropriately channeled to administrators so
these needs could be reflected in planning an inservice training program.
No statistical significance resulted from the multivariate analysis in
Table 19. The results of the item analysis in Table 22 show a size and
treatment main effect in question 30. DeVore (24) found that failure to
meet teachers' needs was one of the reasons that inservice training for
educational change was inadequate. The results of this study show that
little difference exists between CPL and conventional teachers in regard to
their perceptions of the inservice training program meeting their instruc-

Table 21. Item analysis for administrative support given to inservice programs

Item	Question	Treatment X	
		Study	Control
7	Competent assistance is available for solving day-to-day teacher problems.	3.68	3.59
9	Administrators try to provide quality inservice training experiences	3.74	3.57
	The following resources are available in adequate amounts to plan and develop inservice activities.		
31a	Money	2.79	2.82
31b	Space	3.55	3.62
31c	Materials	2.42	3.52
31d	Equipment	3.46	3.53
31e	Time	2.71	3.02
33	Adequate funds for inservice training seem to be a high administrative priority	2.64	2.86

Type and Level of Significance

Item	Size	Grade level x treatment
9 $\overline{X}$	.006 1) 3.86 2) 3.52	
31a		.0302

tional needs. The channeling of teacher problems, though, does seem to be better defined in CPL schools.

Teacher evaluation   The perceived level of teacher participation in the evaluation of inservice training programs was sought in statements 8 and 32. Teachers in large school districts scored significantly higher

Table 22. Item analysis of teacher needs as a basis for inservice programs

Item	Question	Treatment $\bar{X}$	
		Study	Control
6	Teachers refer their opinions about the instructional program to administrators.	3.58	3.48
30	A well-defined procedure exists to express individual teacher problems.	3.38	3.07

Type and Level of Significance

Item	Size	Treatment	Size x grade level
30 $\bar{X}$	.0126 1) 3.44 2) 3.07	.0165	.0226

(.05 level) than teachers from small schools. The item analysis in Table 23 shows the two statements with a probable F value of $P > .0005$ and $P > .0003$, respectively. DeVore (24) found that the failure of administrators to provide for teacher evaluation of inservice programs associated with innovation was a major cause for the lack of improved future inservice activities. This research seems to indicate considerable more teacher evaluation of inservice in the large schools than small ones. The effect of treatment on this factor was minimal as can be noted by the respective mean scores.

Table 23. Item analysis of teacher evaluation of inservice training pro-
grams

Item	Question	Treatment $\bar{X}$	
		Study	Control
8	Teacher and administrators jointly evaluate each inservice meeting in terms of its objectives.	3.19	3.01
32	Teacher evaluation of inservice activities has an impact on future inservice plans.	3.26	3.21

Type and Level of Significance

Item	Size
8 $\bar{X}$	.0005 1) 3.40 2) 2.90
32 $\bar{X}$	.0003 1) 3.55 2) 3.03

Perceived need for instructional supplies and equipment

Teacher perceptions about needed instructional supplies and equipment

and the amount of decision making the teachers have in determining the

needed supplies and equipment was sought from the sample teachers. A com-

posite of the multivariate analysis for supplies and equipment appears in

Table 24. Since the decision making concept was tested with one statement,

multivariate and univariate data are the same and are also given in

Table 24.

Table 24. Composite analysis of instructional supplies, equipment, and decision making

Factor	Size	Grade level	Treatment	Size x grade level	Size x treatment	Grade level x treatment	Size x grade level x treatment
Multivariate							
Needed instructional supplies Λ	.9428	.9461	.9837	.9466	.9202	.9907	.9791
d.f. 10/311							
Converted F	1.8463[*]	n.s.	n.s.	n.s.	2.6394[***]	n.s.	n.s.
Needed instructional equipment Λ	.8793	.9443	.9556	.8909	.9831	.9410	.9438
d.f. 15/308							
Converted F	2.5313[***]	n.s.	n.s.	2.2542[***]	n.s.	n.s.	n.s.
Univariate							
Decision making							
d.f. 2/306							
Converted F	11.1167[***]						

[*]Significant at .10 level.

[***]Significant at .01 level.

Supplies   Statements 10, 11, 12, 34, and 35 quizzed the respondents

about needed instructional supplies for their programs. Items relating to

availability of textbooks, workbooks, duplicating materials, supplementary

textbooks, and evaluation materials. Table 24 reports the results of the

multivariate analysis which reveals a highly significant interaction

between size and treatment. As evidenced by Figure 3, control teachers in

larger districts do not perceive as great a need for instructional supplies

as do CPL teachers in the larger school districts. However, little differ-

ence exists between study and control teachers for the perceived need for

instructional supplies in the smaller school districts. Table 25 reports

two of the five statements quizzing the teachers on perceived need for

instructional supplies with highly significant size effect and one state-

ment with a .003 size and treatment interaction. The multivariate data

shows a substantial, though not significant, size difference.
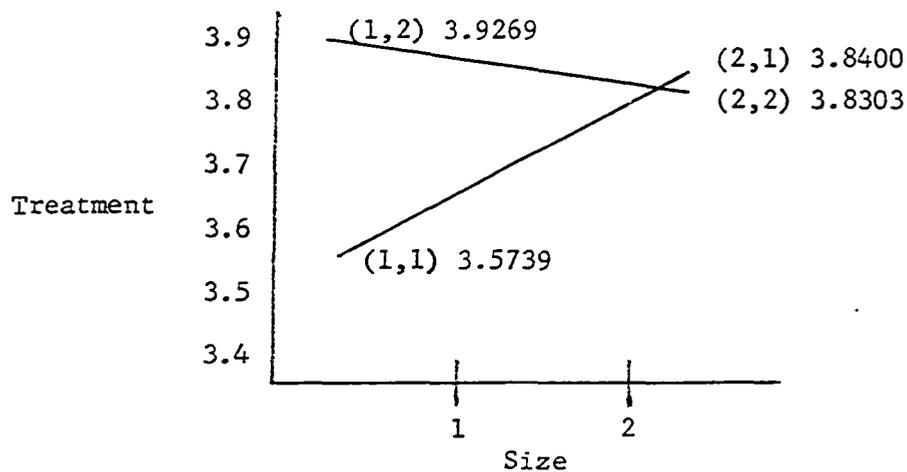

Figure 3. Interaction of size and treatment in teacher responses to
instructional supplies needed

Table 25.   Item analysis of teacher responses to instructional supply
statements

		Treatment $\bar{X}$	
Item	Question	Study	Control
10	Adequate quantities of textbooks are available to meet program goals.	3.91	4.00
11	Adequate quantities of workbooks are available to meet program goals.	3.75	3.94
12	Adequate quantities of duplicating materials are available to meet program goals.	4.17	4.22
34	Adequate quantities of supplementary textbooks are available to meet program goals.	3.60	3.59
35	Adequate quantities of evaluation materials are available to meet program goals.	3.46	3.44

Type and Level of Significance

Item	Size	Grade level	Size x grade level	Size x treatment
10 $\bar{X}$		.0136 1) 4.10 2) 3.96 3) 3.79	.0069	
12 $\bar{X}$	.0023 1) 4.00 2) 4.32			.0003
38 $\bar{X}$	1) 3.42 2) 3.71			

Instructional equipment   The respondents perceived level of the

adequacy of instructional equipment and pupil study space was shown in

Table 23, which revealed that a highly significant difference by school

district size and interaction between school district size and grade level.

The interaction was not subjected to further analysis because it did not include treatment as one of the factors. The significance of size was noted by computing the means for sizes 1 and 2. Teachers in size 1 schools had means of 3.67 while teachers' in smaller districts mean score was 3.85. The teachers from those smaller districts evidently felt that instructional equipment was more available in sufficient quantities than teachers in the larger school districts. The item analysis in Table 25 showed that statements 36b and 36f dealing with 8 mm loop projectors and video tape equipment were in greater need in the large districts while statement 36d shows a greater need for record players in the small districts. In consulting Table 26, it should be noted that statement 13 dealt with pupil study area. Control teachers responded to this question significantly more favorably than CPL teachers. CPL teachers seemed to feel the need for more pupil learning space.

Decision making   Reference (22) was made to the importance of teachers being involved in making decisions in purchasing new instructional supplies and equipment. Statement 37 was to obtain the teacher perceived level of decision making. Table 27 reports that school size district is a highly significant factor. Teachers in large districts seemed to feel they were more a part of the decision making process in purchasing instructional equipment and supplies than did teachers in the smaller schools.

Organizational characteristics

The organizational characteristics of scheduling pupil and teacher activities, methods used to group pupils for instruction, grading procedures employed, the administrator's role, and the degree of decision making

Table 26. Item analysis of teacher responses to instructional equipment
statements

Item	Question	Treatment $\bar{X}$	
		Study	Control
13	Adequate space for pupil study is available.	3.64	3.96
	The following instructional equipment is available to meet instructional program goals.		
36a	Filmstrip projectors	4.30	4.30
36b	Super 8 mm loop projectors	2.79	3.04
36c	16 mm sound projectors	4.19	4.07
36d	Record players	4.28	4.43
36e	Tape recorders	4.25	4.33
36f	Video tape equipment	2.84	2.86
36g	Other teaching machines	3.61	3.52

Type and Level of Significance

Item	Size	Treatment	Size x grade level	Size x grade level x treatment
13		.0174	.0404	
40			.0409	
41	.003			.0316
$\bar{X}$	1) 2.48			
	2) 3.21			
42				.0442
43	.0279			
$\bar{X}$	1) 4.53			
	2) 4.24			
45	.0006			
$\bar{X}$	1) 2.43			
	2) 3.13			

Table 27. Item analysis of teacher decision making in selection of
instructional supplies and equipment

| Item | Question | Treatment $\bar{X}$ | |
		Study	Control
37	Teachers make decisions on needed instructional equipment and supplies	3.84	3.72

Type and Level of Significance

Item	Size
37 $\bar{X}$	.0013 1) 4.01 2) 3.61

allowed teachers in these four characteristics were tested. Table 28

reports the multivariate data for these five characteristics.

Scheduling   Items 4 and 38 addressed themselves to the scheduling

methods used which included the scheduling of pupil and instructor time.

Inspection of Table 28 shows a highly significant interaction between grade

level and treatment.

Perusal of Figure 4 shows that CPL teachers scored significantly

higher on these statements at grade level 3. Control teachers, however,

scored higher than CPL instructors at grade level 2. Little difference was

found between first and second grade teachers regardless of instructional

methods. A further analysis of each item in Table 29 shows that statement

38 has an interaction between grade level and treatment at the .003 level.

Table 28. Composite of multivariate analysis for organizational characteristics

Factor	Size	Grade level	Treatment	Size x grade level	Size x treatment	Grade level x treatment	Size x grade level x treatment
Scheduling Λ d.f. 4/314	.9897	.9908	.9892	.9782	.9864	.9315	.9967
Converted F	n.s.	n.s.	n.s.	n.s.	n.s.	5.6942***	n.s.
Pupil grouping Λ d.f. 4/314	.9885	.9809	.9919	.9702	.9879	.9991	.9931
Converted F	n.s.	n.s.	n.s.	2.4093**	n.s.	n.s.	n.s.
Pupil grading Λ d.f. 4/314	.9448	.9885	.9757	.9939	.9960	.9889	.9936
Converted F	4.5897***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Adm. role Λ d.f. 4/314	.9997	.9749	.9936	.9942	.9986	.9904	.9932
Converted F	n.s.	2.0679*	n.s.	n.s.	n.s.	n.s.	n.s.
Decision making Λ d.f. 4/314	.9865	.9952	.9994	.9762	.9994	.9829	.9808
Converted F	n.s.	n.s.	n.s.	1.9152	n.s.	n.s.	n.s.

*Significant at .10 level.

**Significant at .05 level.

***Significant at .01 level.
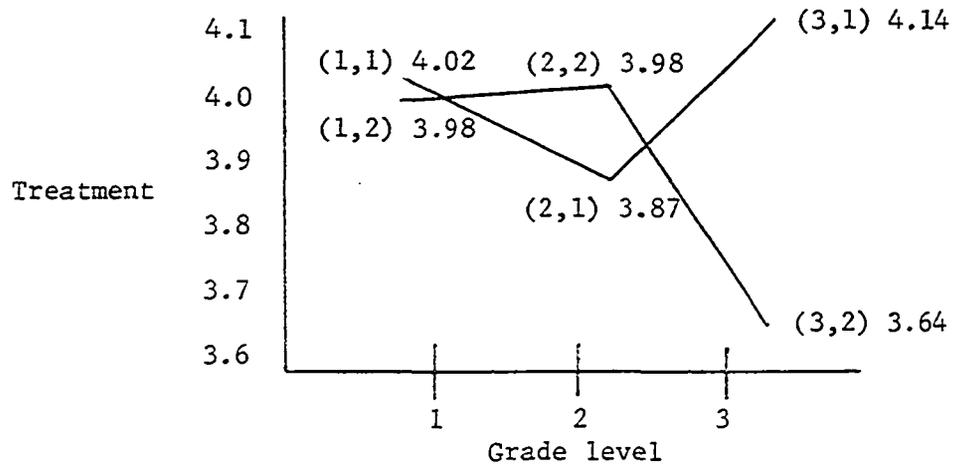
Figure 4. Interaction of grade level and treatment for scheduling

Fifth and sixth grade teachers using CPL felt significantly more positive about administrators providing planning time during the day than their counterparts using conventional methods. Small differences existed between teacher groups at the other two grade levels. Evidently the scheduling of pupil time was not perceived by teachers as a major obstacle as judged from their mean scores of 4.0 or general agreement with statement.

Pupil grouping   In order to determine differences, if any, between study and control teachers' perceived level of flexibility allowed for grouping pupils for instruction and amount of independent student study, items 5 and 6 were included. As may be observed in Table 28, a significant interaction between school size and grade level resulted from the multivariate analysis. The item data in Table 30 reveals the source of this interaction in statement 5. Again further analysis was abandoned because instructional methodology was not a factor in the interaction. Treatment means reveal that CPL teachers scored higher, though not significantly, on these items which give some evidence that they are implementing some of the CPL concepts.

Table 29. Item analysis of teacher responses to scheduling

Item	Question	Treatment $\bar{X}$	
		Study	Control
4	Teachers develop time schedules for learning activities.	4.13	4.15
38	Administrators provide for teacher planning time during the day.	3.89	3.59

Type and Level of Significance

Item	Grade level x treatment
38	.003

Table 30. Item analysis of teacher responses to pupil grouping statements

Item	Question	Treatment $\bar{X}$	
		Study	Control
5	Flexibility is allowed in grouping pupils for instruction.	4.43	4.29
6	Students work independently.	4.08	3.92

Type and Level of Significance

Item	Size x grade level
5	.0125

Pupil grading   The method of grading pupils was sought from teacher

responses in items 17 and 39. The multivariate analysis of the data in

Table 29 showed a highly significant school district size effect. The item

analysis shown in Table 31 resulted in a highly significant effect from

school size in statement 7 with both size and treatment effects occurring

in item 49.

Table 31. Item analysis of teacher responses to pupil grading

Item	Question	Treatment $\bar{X}$ Study	Control
17	Pupils do not receive letter grades.	3.42	3.09
39	Pupils are graded on the basis of individual achievement.	4.50	4.18

Type and Level of Significance

Item	Size	Treatment
17 $\bar{X}$	.0047 1) 2.87 2) 3.49	
39 $\bar{X}$	.0056 1) 4.54 2) 4.19	.0117

Teachers' from the larger school districts responses revealed that

fewer letter grades were given and more grading was done on an individual

basis than instructors from the smaller districts. Additionally, CPL

teachers were doing more grading on an individual basis than conventional

teachers. While the receiving of letter grades was not significant regardless of the instructional methodology employed, CPL teachers did respond more favorably than the control group.

Administrator's role   Statements used here modified from Duncan (26) to get respondent's perception of the administrative role. Item and multivariate analysis failed to yield any significant difference of mean effect or interaction. A grade level effect (.10 level) was noted in Table 28. A study of treatment means in Table 32 for the two statements reveals .0094 mean difference in number 19 while the mean difference was .1731 in statement 40. Results of this study do not show a significant difference in the administrative role as limited by the two concepts used-- accepting suggestions from teachers and listening to the teacher.

Table 32.   Item analysis of teacher responses to administrative role statements

Item	Question	Treatment $\bar{X}$	
		Study	Control
19	The administrator is open to suggestions on ways to improve scheduling, method of pupil grouping, or pupil grading.	3.97	3.96
40	When meeting with a teacher, the principal generally encourages the teacher to do most of the talking.	3.44	3.62

Decision making   Table 28 reveals that the multivariate analysis failed to find any significant differences among school district size, grade level, or treatment. Statements used were taken from Duncan's (26) research on communication patterns during innovation. The item analysis

shown in Table 33 revealed that teachers in large districts responded significantly more positively to statement 18. A review of treatment means shows that CPL teachers scored higher, though not significantly.

Table 33. Item analysis of teacher involvement in decision making

Item	Question	Treatment $\bar{X}$	
		Study	Control
18	When a teacher begins talking about a change that could improve the scheduling, method of pupil grouping, or pupil grading, the principal generally seems interested and encourages the teacher to fully explain the new idea.	4.23	4.19
41	When a change in scheduling, method of pupil grouping, or pupil grading is suggested, the principal works closely with the teachers in deciding whether to adopt the change.	3.73	3.71

Type and Level of Significance

Item	Size	Size x grade level
18 $\bar{X}$	.0488 1) 4.35 2) 4.11	.0314

Staff commitment   As shown in Table 34, teachers of grades one, two, three, and four appeared to be significantly more committed than teachers of fifth and sixth grade pupils. Item analysis of the statements in this collection revealed a highly significant treatment effect in item 2 which was related to use of nonscheduled time. CPL teachers evidently

Table 34. Analysis of teacher responses to staff commitment statements

Item	Question	Treatment $\overline{X}$	
		Study	Control
20	I take school work home.	4.34	4.25
21	I look forward to each school day.	4.23	4.26
22	I spend my nonscheduled time on school work.	4.38	4.10
23	I volunteer for curriculum committees.	3.41	3.28
24	I arrive at school before regular school hours.	4.34	4.21

	Size	Grade level	Treatment	Size x grade level	Size x treatment	Grade level x treatment	Size x grade level x treatment
Multivariate analysis							
d.f. 10/311	.9489*	.9235***	.9667	.9734	.9912	.9733	.9655
Control F	1.6550	3.5833	n.s.	n.s.	n.s.	n.s.	n.s.
$\overline{X}$	1) 4.15	1) 4.10					
	2) 4.03	2) 4.08					
		3) 3.22					
Univariate analysis							
Item 20	.0161						
$\overline{X}$	1) 4.46						
	2) 4.18						
Item 22			.0059				
$\overline{X}$							
Item 24	.0022						
$\overline{X}$	1) 4.34						
	2) 4.11						

*Significant at .10 level.

***Significant at .01 level.

spent their unscheduled time doing more school work than control teachers.

While not significantly more committed, as determined by these statements,

the CPL teacher mean for all statements was 4.14 as compared to a control

teacher mean of 4.02. CPL teachers seem to be as committed to their

instructional methods as control teachers.

Discussion

The results of this study seem to show few significant differences

between CPL and control teachers. Several factors may have contributed to

the limited findings.

The fact that CPL teachers had used their methods for at least 20

months may indicate that CPL may be in the last stages of becoming an

institutionalized concept. A comparison of the adoption rates between the

two groups teachers studied revealed minor differences. Perhaps it would

have been more fruitful to have studied CPL in its first few months of

establishment to examine early adopters and teachers of conventional

classrooms.

A second point would be the degree to which CPL concepts had been

implemented in the districts and, therefore, teachers selected for this

study. The conjecture could be made that even though districts stated they

were using CPL, in fact the possibility could exist that the program had

not been thoroughly implemented by the individual teachers. The methods

being used by so-called CPL teachers may have been more similar to previ-

ously used procedures than to the true CPL concept.

A third issue which may have been a factor in the failure to discover

differences could have been that the instrument used did not discriminate

to the degree necessary. The differences sought may need an instrument with a higher degree of validity than the one used.

A fourth factor which may have contributed to the minor differences between the CPL and study teacher could be associated with the failure of IGE, IPI, and PLAN to collectively represent the CPL concept. Perhaps the indiscriminate pooling of the responses from teachers in these programs tended to nullify differences, if any.

A final explanation for the paucity of results could be whether teachers were allowed to choose the CPL instructional methodology and were, therefore, volunteers for CPL "schools" or whether they were assigned. Similarly, were the control teachers given the option of selecting their instructional methods? It is conceivable that some control teachers were using some CPL concepts in their individual classrooms yet were not using one of the formal CPL programs.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This dissertation was directed at the problem of determining differences in the personal characteristics and perceptions about selected instructional program characteristics of continuous progress learning teachers and teachers using more conventional instructional methods. Specific areas investigated were the teachers' personal characteristics, i.e., age, amount of education, recency of education, belief system, attitude toward change, degree of job satisfaction, level of decision making, degree of interpersonal regard, knowledge of learning theory, adoption rates, and perceptions about needed clarification of the teacher's role, instructional program goals, inservice training, to include teacher involvement, administrative support, teacher needs and evaluations, instructional supplies and equipment, and organizational rearrangement, i.e., scheduling, pupil grouping and grading, administrative support and decision making, and the degree of staff commitment.

Personal Characteristics

Analysis of the responses concerning personal characteristics of CPL and study teachers revealed four differences. A summary of these comparisons appeared in Table 35.

The age and the amount of education of CPL teachers were not found to be significantly different than study teachers. These results do not support the Jones (58) review of these two characteristics which revealed, generally, that the younger and more educated teachers are usually associated with innovation.

Table 35. Composite display of chi square and F values comparing study and control teachers' personal characteristics

Characteristic	d.f.	Chi square value	Converted F value
Age	6	9.43795	
Amount of education	2	2.93766	
Recency of education	3	10.03400**	
Belief system	8/312		1.02735
Attitude toward change	8/312		1.02736
Job satisfaction	40/296		.82500
Decision making	8/312		1.51069
Interpersonal regard	8/312		1.34892
Knowledge of learning theory			
Adoption rate	10/311		1.26868

**Significant at .05 level.

The data obtained from the comparison of CPL and conventional teachers relative to the recency of their last college work revealed a significant difference. CPL teachers had attended college more recently than had teachers using more conventional methods.

A computation of means for each group only showed a mean difference of .08 years favoring the CPL teachers. However, analysis of the variance by the chi square test revealed a (P > .02) significance favoring CPL teachers. While slight, this finding parallels that of Jones (58) who reported two studies positively related to innovation and recency of college work while he did not find any research that was not consistent with this belief.

Analysis of the type of belief system held by CPL and study teachers failed to reveal significant differences.

The characteristic, attitude toward change, was significantly related to method of instruction and school district size. CPL teachers in large schools responded much more favorable and, therefore, appeared to have more positive attitude toward change than CPL teachers in the smaller districts. Research (58) in area of teachers' attitude toward change showed four studies supporting a positive attitude toward change with innovativeness while none were found to the contrary.

Data from the comparison of the degree of interpersonal regard held by CPL and control teachers showed a highly significant interaction (.01 level) between grade level and instructional method. Control teachers at grades one, two, three, and four scored significantly higher than CPL instructors. However, this result was not found at grades five and six. Teachers using CPL and those using conventional methods teaching 10, 11, and 12 year olds had a mean difference of .03 on a six-point Likert type scale. The results of this study do not establish the positive relationship of higher interpersonal regard and teachers' innovativeness suggested by Reese (84) and Bridges and Reynolds (13).

The difference between CPL and study teachers relative to adoption rate was not statistically significant. It appeared that CPL was equally acceptable to the individual teacher as were conventional methods.

Teacher Perceptions

The second major purpose of this study was to compare CPL teachers with teachers using conventional methods in regard to their perceptions regarding the clarity of the teacher role, the clarity of the instructional program goals, the inservice program needs, needs for instructional sup-

plies and equipment, selected organizational characteristics, and degree of staff commitment. Table 36 summarized the significant findings of this effort by using Wilks'Λ and the associated F tests.

Teacher Role and Program Goals

The effect of the instructional methodology on teacher perception of roles they are to perform and the clarity with which the individual teaches view the goals of their instructional program failed to reveal significant differences (CPL teachers had a mean of 4.38 and control teachers a 4.31 average score). Instructional methods did not appear to be a significant factor on teacher's perception of their role.

Inservice Training

When the four components of inservice training (teacher involvement, administrative support, teacher needs, and teacher evaluation) were examined, no significant differences were found between instructional methodologies or grade levels. A highly significant district size effect occurred with the teacher involvement and evaluation concepts. Teachers in large districts scored significantly higher (.01 level) than their counterparts in small districts on these two items. Analysis of the teaching methodology data for teacher involvement in determining the inservice training program shows CPL teachers responded significantly more positive than the study teachers, that is to say, they felt more involved.

Instructional Supplies and Equipment

The perceived level of needed instructional supplies was highly significant when the factors of school district size and instructional method-

ology were considered. CPL teachers in large school districts indicated a greater need for supplies than the control teachers in large districts. Minor differences occurred between CPL and control teachers in small districts. Differences in teacher perceptions for needed instructional equipment varied by school district size and also in interaction between size and grade level. Teachers in the larger districts suggested a greater need for instructional equipment than teachers in the small district (P > .01). Analysis of the decision making process associated with the purchase of instructional supplies and equipment revealed no effect from instructional methodology employed, but a highly significant difference was found when considering school district size.

Organizational Characteristics

Analysis of the five organizational characteristics, viz., scheduling, pupil grouping, pupil grading, administrative role, and the decision making process of these organizational factors, revealed three significant results. A highly significant interaction between grade level and treatment occurred in the scheduling characteristic. CPL teachers at grade level three scored significantly higher than control teachers at this grade level. The organizational characteristics of pupil grading, pupil grouping, administrative support, and the decision making process failed to show differences of statistical significance between CPL and study teachers.

Staff Commitment

Results of analyzing the staff commitment responses showed a highly significant effect from the grade level factor. Teachers in grade levels one and two scored significantly higher than teachers in level three.

Teachers of grades one, two, three, and four appeared to be more committed to their jobs than teachers of fifth and sixth grade pupils.

Table 36 summarizes the significant findings of the teacher perceptions toward their present instructional programs. Converted F scores are given below the appropriate main effects or interactions when significance was reported.

Conclusions

The conclusions made from this study were presented as they related to each type of teacher and their personal characteristics and perceptions.

Personal characteristics

1. CPL teachers had significantly more recent education than control teachers.

2. CPL teachers in large schools have significantly more favorable attitude toward change than control teachers in large districts.

3. CPL teachers of grades one, two, three, and four showed a significantly lower degree of interpersonal regard than study teachers at the same grade levels.

4. There was no significant difference between CPL teachers and control teachers in regard to the personal characteristics of age, amount of education, belief system, degree of job satisfaction, involvement in decision making, interpersonal regard, knowledge of learning theory, and rate of adopting a teaching methodology.

Table 36. Composite of study and control teacher perceptions

Perception	Size	Grade level	Treatment	Size x Grade level	Size x treatment	Grade level x Treatment
Teacher role		2.3653*				
Program goals	2.2378*					
Inservice training						
Teacher evaluation	4.9333**					
Teacher involvement	8.6770**					
Supplies					2.6394**	
Equipment	2.5313**					
Organizing characteristics						
Scheduling						5.6942**
Pupil grading	4.5897**					
Staff commitment			2.5833**			

*Significant at .05 level.

**Significant at .01 level.

Perceptions

1. CPL teachers in large schools perceive a greater need for instructional supplies than control teachers in large schools.

2. CPL teachers of grades five and six perceive a significantly smaller need for improved scheduling of pupil and instructor time than control teachers of similar grades.

3. There was no significant difference between CPL teachers and control teachers in regard to the perception of: clarity of the teacher's role, clarity of instructional goals, the inservice training program, instructional supplies and equipment, and decision making associated with their purpose, organizational characteristics, e.g., pupil grouping and grading methods, the administrator's role, and the decision making associated with these characteristics, and staff commitment.

Use of the findings

An understanding of the variables and the interaction of these variables affecting the implementation of educational change represents a major challenge to the professional educator. Once a decision is made to introduce a new concept into a given school district, intensive effort must be directed at insuring a meaningful and lasting change.

The findings of this study reveal that the personal characteristics and the individual teacher perceptions about the instructional program do not vary greatly whether associated with CPL or some other instructional procedure. The meager personal differences between the two groups of teachers were found to be associated with the recency of last formal educa-

tion and degree of interpersonal regard. It was encouraging to note that recency of education was a significant factor when comparing CPL teachers with the control group.

The similarities of the perceptions shown by CPL and control teachers suggest the possibility that the requirements for implementing CPL are much the same as those for conventional methods. Additionally, that the answer for successful implementation of change may lay outside the variables considered in this study perhaps in internal motivation, personal rewards, or changed opinions. The initiators of change must focus on the individual teacher, the instructional program, and the students.

Limitations

Even though the items used in the survey instrument were subjected to a field test, validity of the statements was not established. It was felt that the exploratory nature of this study would not require validating each item. Several sections of the questionnaire contained abbreviated parts of published instruments, e.g., FIRO-B, Minnesota Job Satisfaction Questionnaire, Rokeach's Belief System, and other items were developed from a comprehensive study of the change literature.

The selection of both change and control schools was limited to the similarity of district size, cost per pupil, geographic location, and usage of current instructional methods for at least 20 school months. By using more definitive standards in sample selection, possible further discrimination may have been found in the replies received. The data used in this study were based on a 72.6 percent return of the survey instrument.

The questionnaire technique has the obvious advantage of contacting many people at the same point in time. However, the lack of personal contact may lead to misinterpretation of the test items by the individual respondents. It was hypothesized that if the cooperation of the building principal was gained, the teacher's response would be much higher. Instead, the critical variable affecting percentage of return seemed to be school district size.

Recommendations

Additional research

The major purpose of exploratory studies, such as the present one, is to provide direction for more detailed research in a specific area. The findings of this study provide several issues that may merit further in-depth research.

While a positive attitude toward change was statistically significant for CPL teachers in large schools, this finding was not true in the smaller school district. It is recommended that further research be conducted including teachers who had made the individual choice to use CPL or were arbitrarily assigned. Larger school districts may have had greater flexibility by using teachers who volunteer to participate in an educational change effort as compared to smaller schools who may have assigned teachers.

Further research is needed concerning the importance of interpersonal regard as a characteristic associating with educational change. A study focusing on the interpersonal behavior necessary by teachers for effective implementation of new educational practice could provide initiators of

change with data to select a staff based on interpersonal relationship pat-
terns.

Recommendations to prospective and present CPL schools

In order to increase the likelihood of acceptance and hence adoption of
continuous progress learning concepts, the following recommendations are
made:

1. Seek teachers who have recently attended college or encourage
   present staff members to return for additional education;

2. Large school districts should attempt to identify teachers with a
   favorable attitude toward change, then encourage these teachers to
   join the proposed CPL teaching staff;

3. Although not established by this investigation, the literature
   cites the following traits of innovative teachers: younger, more
   education, an open belief system, a favorable attitude toward
   change, high job satisfaction, a high degree of interpersonal
   regard, and are involved in decision making. A principal or
   superintendent seeking to develop a new instructional system is
   advised to seek teachers who match this profile.

4. Small districts embarking on a CPL program should make an inten-
   sive effort to develop teacher involvement in the selection of
   inservice training topics.

5. Users of this methodology in large schools should consider the
   extra instructional supplies needed to implement the program.

6. Special attention should be directed at scheduling pupil and
   instructor time at grades one through four.

A final personal characteristic recommended for additional research is the adoption rates of new educational practice by the individual teacher. As evidenced by this study, after 20 months CPL teachers had no higher rate of adoption than teachers using other instructional methodologies. Conditions related to full adoption of a particular instructional method would provide the administrators with information to develop a sequential and scientific master plan for implementing educational change. The refinement of a data gathering instrument for measuring variables affecting adoption rates is a necessity.

The exploration of teacher perceptions in several instructional areas used in this study points up the vital need for additional research associating with implementing educational change. Several of the perceived needs voiced by teachers seem to be related to effective leadership. A more informed leader can better meet the needs expressed by teachers since the leader (administrator) controls the resources necessary for a successful educational program, i.e., time, money, supplies, equipment, organizational characteristics.

Additional research in the area of differences between teachers involved with educational change and those using more traditional methods should be undertaken with another combination of variables. Such factors as teacher and residential turnover, school district property values, the occupational class and educational level of parents, and the nature of the school system itself (open or closed) may provide further information about those conditions which relate to educational change.

The significant findings of this study relating to teacher perceptions associated with school size more often than with grade level or treatment.

Perhaps the reasons why some teachers seek employment in small schools and others prefer large ones should be studied. Another aspect of the school size difference might be that smaller schools require a different model for change than large schools. Methods which are successful in implementing educational change in one size of school may not be generally applicable to schools of different sizes.

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APPENDIX

.

Respondent's Name _____
(Optional)

1. Age (last birthday) _____

2. Please circle the number of years of college you have completed:

    1   2   3   4   5   6   7

3. Date you completed last college course _____
(Month and year)

4. Please choose one of the following statements which best describes your present teaching position. Circle the appropriate letter - A, B, C, or D.

    A. I teach (6-7-8 year olds) or (first or second grades).

    B. I teach (8-9-10 year olds) or (third or fourth grades).

    C. I teach (10-11-12 year olds) or (fifth or sixth grades).

    D. None of the above.

5. Please give the number of years you have taught in this attendance center in the position described in 4 above. (exclude the 75-76 school year) _____(year/s)

Please give your impressions by circling your selections according to the following key:

    1. - I Disagree Very Much   4. - I Agree a Little
    2. - I Disagree on the Whole   5. - I Agree on the Whole
    3. - I Disagree a Little   6. - I Agree Very Much

6. It is only natural for a person to be rather fearful of the future.   1 2 3 4 5 6

7. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.   1 2 3 4 5 6

8. In this complicated world of ours, the only way we can know what's going on is to rely on leaders or experts who can be trusted.   1 2 3 4 5 6

9. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.   1 2 3 4 5 6

Please give your impressions by circling your selections according to the following key:

1. - No, Never
2. - No, Almost Never
3. - Usually Not, Infrequently

4. - Sometimes, Yes and No
5. - Usually Yes, Frequently
6. - Yes, Almost Always
7. - Yes, Always

10. Are you willing to try something new--something that will require extra initial effort on your part?   1 2 3 4 5 6 7

11. Do coffee hour or informal conversations include new ideas and developments in curriculum and instruction?   1 2 3 4 5 6 7

12. Do you take the initiative in contacting other schools and/or school systems that are trying an idea or program that is of interest to you?   1 2 3 4 5 6 7

13. Do you bring new ideas and developments to the attention of colleagues as well as appropriate administrative personnel?   1 2 3 4 5 6 7

The purpose of this section is to give you a chance to tell how you feel about your present job, what things you are satisfied with, and what things you are not satisfied with. Read each statement and decide how satisfied you feel about the aspect of your job described. Circle your impressions according to the following key:

1. Very Dissatisfied - means I am very dissatisfied with this aspect of my job.
2. Dissatisfied - means I am dissatisfied with this aspect of my job.
3. Undecided - means that I can't decide whether I am satisfied or not.
4. Satisfied - means I am satisfied with this aspect of my job.
5. Very Satisfied - means I am very satisfied with this aspect of my job.

	Very Dis-sat. 1	Dis-sat. 2	Und. 3	Sat. 4	Very Sat. 5
14. Being able to keep busy all the time.	1	2	3	4	5
15. The chance to work alone on the job.	1	2	3	4	5
16. The chance to do different things from time to time.	1	2	3	4	5

		Very Dis- sat. 1	Dis- sat. 2	Und. 3	Sat. 4	Very Sat. 5
17.	The chance to be "somebody" in the community.	1	2	3	4	5
18.	The way my supervisor handles the faculty.	1	2	3	4	5
19.	The competence of my supervisor in making decisions.	1	2	3	4	5
20.	Being able to do things that don't go against my conscience.	1	2	3	4	5
21.	The way my job provides for steady employment.	1	2	3	4	5
22.	The chance to do things for other people.	1	2	3	4	5
23.	The chance to tell people what to do.	1	2	3	4	5
24.	The chance to do something that makes use of my abilities.	1	2	3	4	5
25.	The way policies are put into practice.	1	2	3	4	5
26.	My pay and the amount of work I do.	1	2	3	4	5
27.	The chances for advancement on this job.	1	2	3	4	5
28.	The freedom to use my own judgment.	1	2	3	4	5
29.	The chance to try my own methods of doing the job.	1	2	3	4	5
30.	The working conditions.	1	2	3	4	5
31.	The way my co-workers get along with each other.	1	2	3	4	5
32.	The praise I get for doing a good job.	1	2	3	4	5
33.	The feeling of accomplishment I get from the job.	1	2	3	4	5

Read each statement and check the category (Never, Seldom, Sometimes, Frequently, Usually, or Always) which best describes the existence of this practice in your school. Check only one response for each statement. Please answer all questions, being certain to indicate what actually exists in your school rather than what you believe ought to exist. Your response will be kept confidential.

1. - Never	4. - Frequently
2. - Seldom	5. - Usually
3. - Sometimes	6. - Always

34. Instructional decisions are made only after a thorough evaluation by the certified personnel involved.   1 2 3 4 5 6

35. Both principal and teachers participate in making decisions which affect the instructional program.   1 2 3 4 5 6

36. Instructional decisions are generally reached by majority agreement of the teachers.   1 2 3 4 5 6

37. Before a major instructional decision is made, opinions from persons outside the building are obtained.   1 2 3 4 5 6

For each of this group of statements, decide which of the following best applies to you. Choose one of the following answers by circling the appropriate number opposite each statement.

1. - Nobody	4. - Some People
2. - One or Two People	5. - Many People
3. - A Few People	6. - Most People

38. I try to be friendly to people.   1 2 3 4 5 6

39. I let other people decide what to do.   1 2 3 4 5 6

40. I try to have close relationships with people.   1 2 3 4 5 6

41. I let other people control my actions.   1 2 3 4 5 6

Please give your impressions of the following statements by circling your selections. The responses are keyed as follows:

1. - Strongly Disagree   (SD)
2. - Disagree   (D)
3. - Undecided   (U)
4. - Agree   (A)
5. - Strongly Agree   (SA)

		SD	D	U	A	SA
42.	Pupil tolerance for failure is best taught through providing a backlog of success that compensates for experienced failure.	1	2	3	4	5
43.	Learning motivated by success is preferable to learning motivated by failure.	1	2	3	4	5
44.	Information about good performance and knowledge of mistakes aids learning.	1	2	3	4	5
45.	Individuals need practice in setting realistic goals for themselves.	1	2	3	4	5
46.	The instructional methods I use are similar to those used by other teachers in the building.	1	2	3	4	5
47.	The instructional methods I am now using seem to be meeting the educational goals of the district.	1	2	3	4	5
48.	I feel comfortable with my current methods of teaching.	1	2	3	4	5
49.	I feel I am able to easily defend my instructional methods to parents.	1	2	3	4	5

50. In regard to the instructional methods you are now using, which of the following statements **best** describes your feeling about these methods. Check (✓) only one.

_____ I am dissatisfied with my present teaching methods.

_____ I have no complaints with my current instructional methods.

_____ I am completely sold on my present teaching procedures and am encouraging my colleagues to use them.

Part Two

Please give your impressions by circling your selections. The responses
are keyed as follows:

1. Almost Never   or   Almost None   or   0% - 20% of the time
2. Seldom   or   A Few   or   20% - 40% of the time
3. Occasionally   or   About Half   or   40% - 60% of the time
4. Frequently   or   Many   or   60% - 80% of the time
5. Constantly   or   Almost Always   or   80% - 100% of the time

1. I know how administrators expect me to teach.   1 2 3 4 5

2. I am aware of how I should respond to pupils in an
   instructional situation.   1 2 3 4 5

3. Administrators have outlined a specific plan for the
   further development of the instructional program.   1 2 3 4 5

4. I try to evaluate the degree to which school goals
   have been realized.   1 2 3 4 5

5. Teacher-expressed needs form the basis for inservice
   training topics.   1 2 3 4 5

6. Teachers refer their opinions about the instructional
   program to administrators.   1 2 3 4 5

7. Competent assistance is available for solving day-to-
   day teacher problems.   1 2 3 4 5

8. Teachers and administrators jointly evaluate each
   inservice meeting in terms of its objectives.   1 2 3 4 5

9. Administrators try to provide quality inservice train-
   ing experiences.   1 2 3 4 5

10. Adequate quantities of textbooks are available to meet
    program goals.   1 2 3 4 5

11. Adequate quantities of workbooks are available to meet
    program goals.   1 2 3 4 5

12. Adequate quantities of duplicating materials are
    available to meet program goals.   1 2 3 4 5

13. Adequate space for pupil study is available.   1 2 3 4 5

14. Teachers develop time schedules for learning activi-
    ties.   1 2 3 4 5

15. Flexibility is allowed in grouping pupils for instruction.　　　　　　　　　　　　　　　1　2　3　4　5

16. Students work independently.　　　　　　1　2　3　4　5

17. Pupils do not receive letter grades.　　　1　2　3　4　5

18. When a teacher begins talking about a change that could improve the scheduling, method of pupil grouping, or pupil grading, the principal generally seems interested and encourages the teacher to fully explain the new idea.　　　　　　　　　　　　　1　2　3　4　5

19. The administration is open to suggestions on ways to improve scheduling, method of pupil grouping, or pupil grading.　　　　　　　　　　　　　　　　1　2　3　4　5

20. I take school work home.　　　　　　　　1　2　3　4　5

21. I look forward to each school day.　　　1　2　3　4　5

22. I spend my nonscheduled time on school work.　1　2　3　4　5

23. I volunteer for curriculum committees.　　1　2　3　4　5

24. I arrive at school before regular school hours.　1　2　3　4　5

25. I have a clear understanding of my function in the instructional program.　　　　　　　　1　2　3　4　5

26. I have a clear understanding of my relationship to other teachers.　　　　　　　　　　　1　2　3　4　5

27. I feel free to consult other teachers in obtaining information to solve instructional problems.　1　2　3　4　5

28. I engage in discussions aimed at defining school goals.　1　2　3　4　5

29. Teachers initiate topics for inservice meetings rather than the administrators.　　　　　　　1　2　3　4　5

30. A well-defined procedure exists to express individual teacher problems.　　　　　　　　　1　2　3　4　5

31. The following resources are available in adequate amounts to plan and develop inservice activities:

      (a) Money 1 2 3 4 5
      (b) Space 1 2 3 4 5
      (c) Materials 1 2 3 4 5
      (d) Equipment 1 2 3 4 5
      (e) Time. 1 2 3 4 5

32. Teacher evaluation of inservice activities has an impact on future inservice plans.   1 2 3 4 5

33. Adequate funds for inservice training seem to be a high administrative priority.   1 2 3 4 5

34. Adequate quantities of supplementary textbooks are available to meet program goals.   1 2 3 4 5

35. Adequate quantities of evaluation materials are available to meet program goals.   1 2 3 4 5

36. The following instructional equipment is available to meet instructional program goals:

      (a) Filmstrip projectors. 1 2 3 4 5
      (b) Super 8 mm loop projectors. 1 2 3 4 5
      (c) 16 mm sound projectors. 1 2 3 4 5
      (d) Record players. 1 2 3 4 5
      (e) Tape recorders. 1 2 3 4 5
      (f) Video tape equipment. 1 2 3 4 5
      (g) Other teaching machines 1 2 3 4 5

37. Teachers make decisions on needed instructional equipment and supplies.   1 2 3 4 5

38. The administrator provides for teacher planning time during the day.   1 2 3 4 5

39. Pupils are graded on the basis of individual achievement.   1 2 3 4 5

40. When meeting with a teacher, the principal generally encourages the teacher to do most of the talking.   1 2 3 4 5

41. When a change in scheduling, method of pupil grouping, or pupil grading is suggested, the principal works closely with the teachers in deciding whether to adopt the change.   1 2 3 4 5